JULY 1958

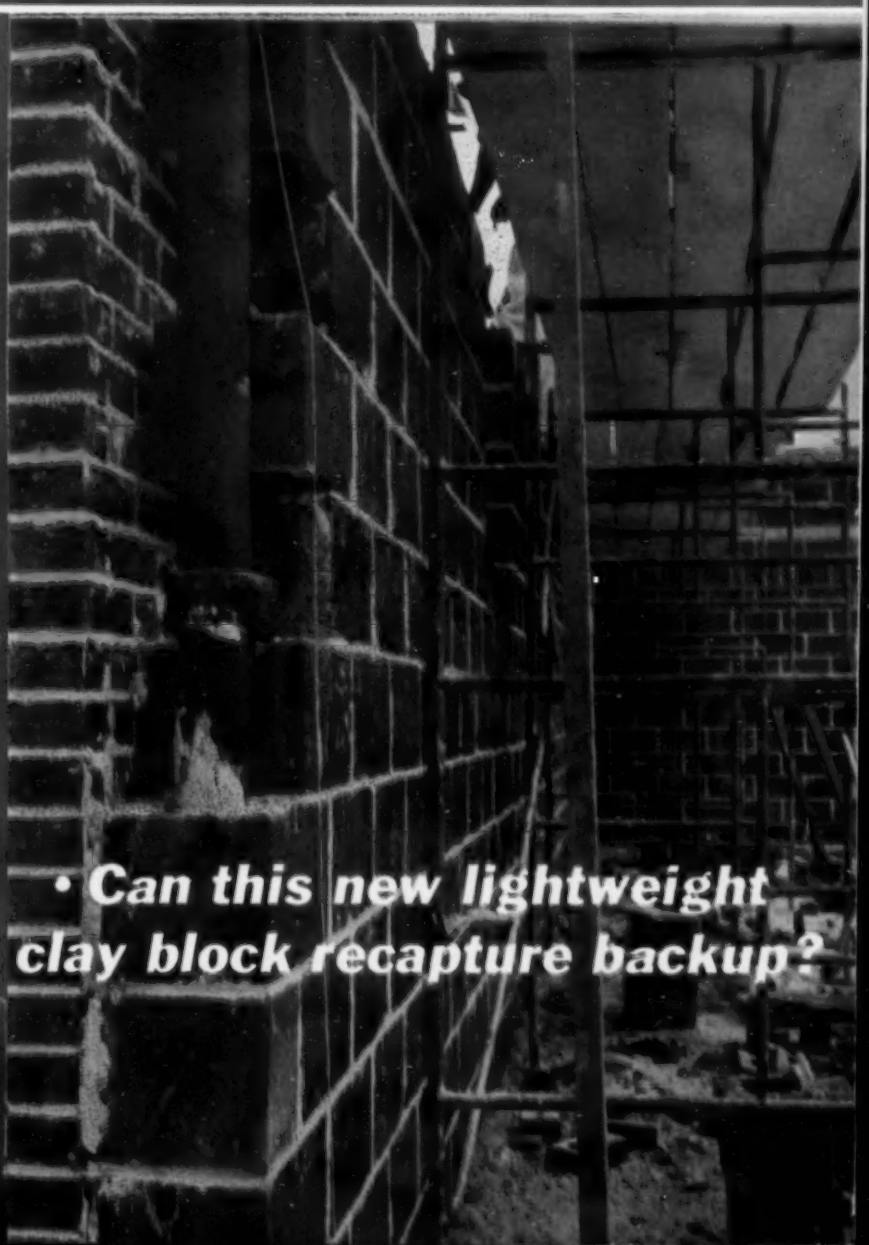
Brick & Clay Record

LEADING CLAY JOURNAL OF THE WORLD

BRICK • REFRACTORIES • STRUCTURAL TILE • SEWER PIPE • DRAIN TILE • TERRA COTTA • ROOFING TILE • CLAY AGGREGATE

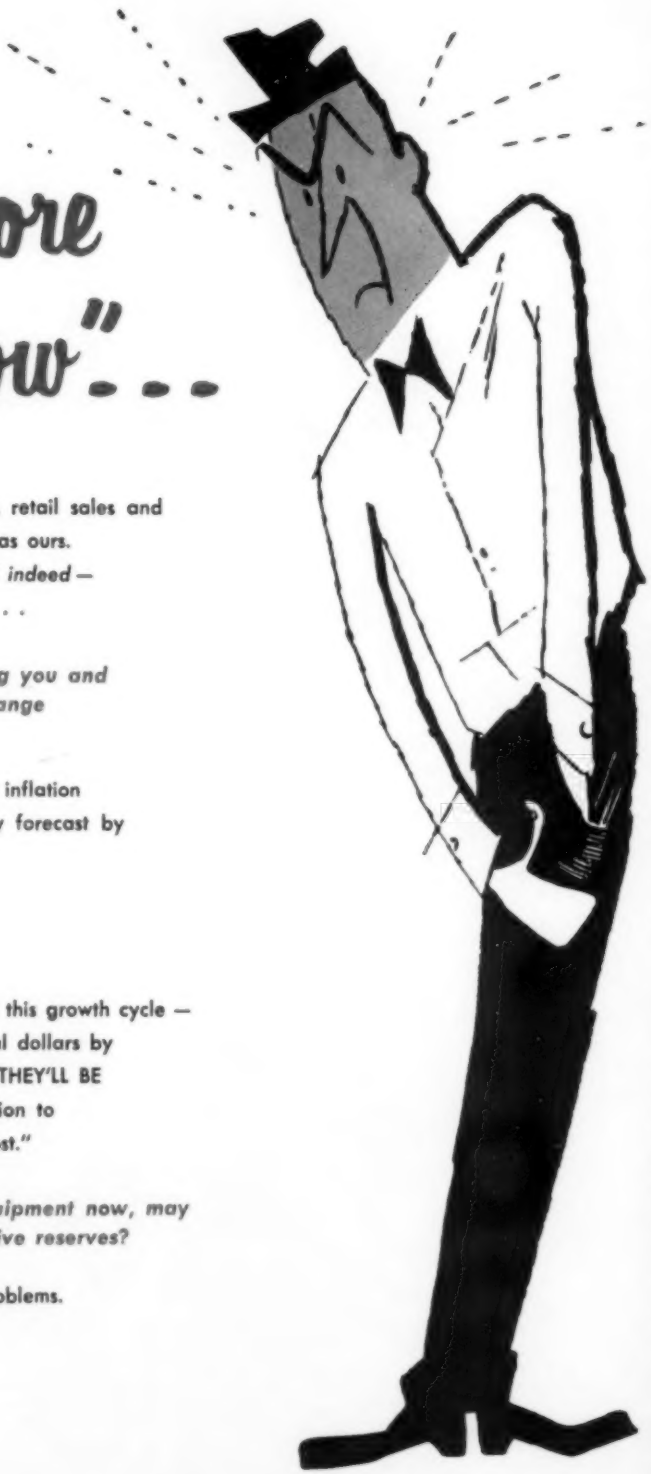
THE BURN'S BRICK BLOCK

Story — Page 48



• Can this new lightweight clay block recapture backup?

"We'll all pay more a year from now"...



Dips and declines in such fundamentals as employment, retail sales and construction can only be short range in a country such as ours. Basically America's free enterprise system is very *sound indeed* — as established by history and experience. That's why . . .

Business, industry and the public — meaning you and I — have an unfaltering faith in the long-range forward march of our country.

With this growth, it is also agreed there will be further inflation . . . therefore, the higher costs and prices as generally forecast by most economists. Which means . . .

"Next year we'll certainly all pay more for most things we buy."

So — doesn't it follow that anyone expecting to share in this growth cycle — *and who has buying power in any form* — will save real dollars by *buying now* . . . AT EQUIPMENT PRICES LOWER THAN THEY'LL BE IN 1959. You'll save cash, and you'll be in better position to "produce quality clay products at the lowest possible cost."

Don't you agree that money invested in equipment now, may well earn more than money held in less active reserves?

Let's discuss prices, financial arrangements and other problems.

STEP AHEAD WITH BONNOT

Rugged Machines for Constant Low Cost Operation—BONNOT'S the Buy

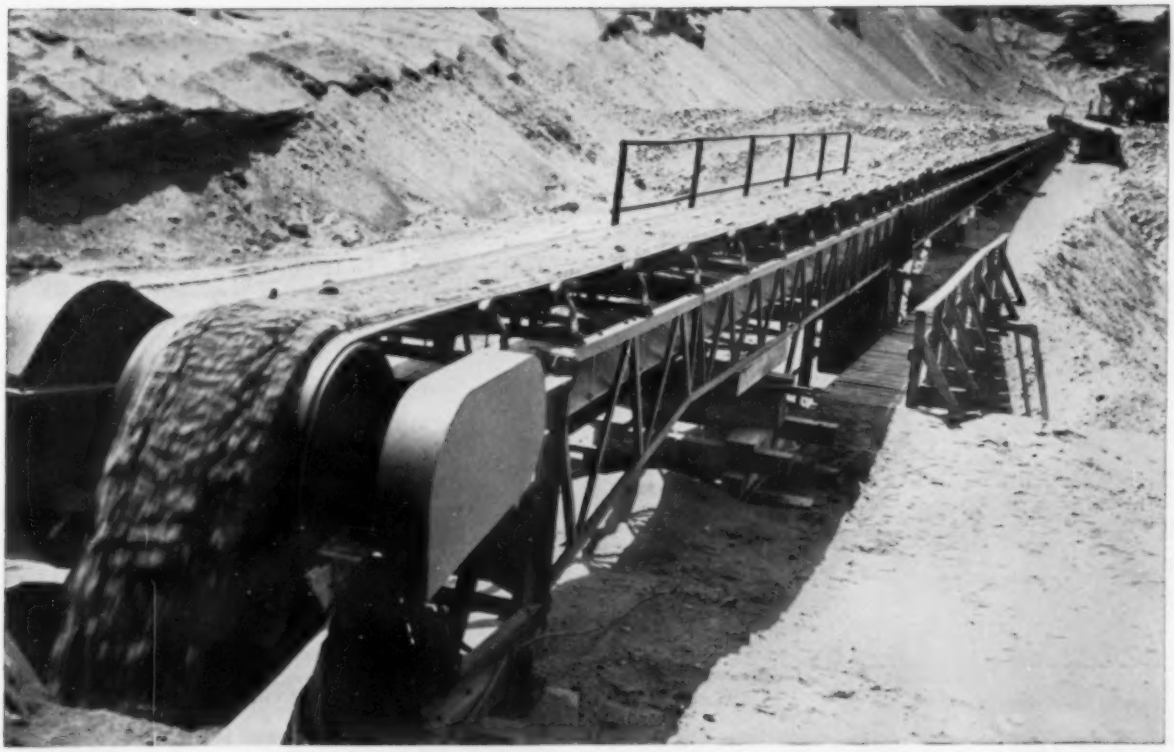
The BONNOT Co.

CANTON 2, OHIO

CRUSHERS
HAMMER MILLS
DRY PANS
WET PANS
GRINDERS
FEEDERS

CUTTERS
REPRESSES
DIES
MIXERS
SPECIAL MACHINES TO ORDER
DIRECT FOUNDRY SERVICE

AUGER MACHINES
VACUUM MACHINES
SPECIAL EXTRUDERS
PUG MILLS



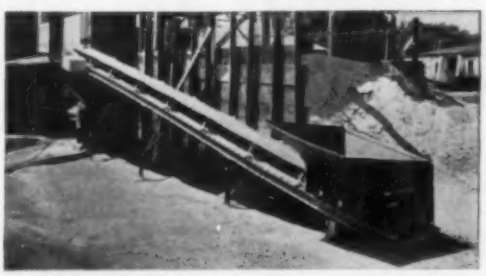
LONG HAUL—Even the longest Barber-Greene Conveyors are built of standardized components . . . produced on a precision, quantity production basis. They can be assembled in almost limitless combinations to cut the time and cost of any material handling job.

Long or short haul—it costs less to move materials with belt conveyors

Thousands of installations—ranging from a few feet to thousands of feet—prove that belt conveyors move bulk material at lowest cost.

No other machine is so simple in construction or requires so little maintenance. No other machine can deliver such high hourly capacities with so little power or attention.

Barber-Greene has given a new meaning to belt conveyor economy. Built of standardized components, Barber-Greene Conveyors are delivered sooner . . . require less engineering . . . are erected faster . . . give top performance . . . and are more easily altered to meet changing or expanding requirements. Being standardized, repair parts are readily available—usually from the stock of your local distributor.



SHORT HAUL—Even the shortest Barber-Greene Conveyors are available in standardized components in the width and length to suit your needs. These small conveyors provide the economical way to handle the widest range of materials with greatest flexibility.

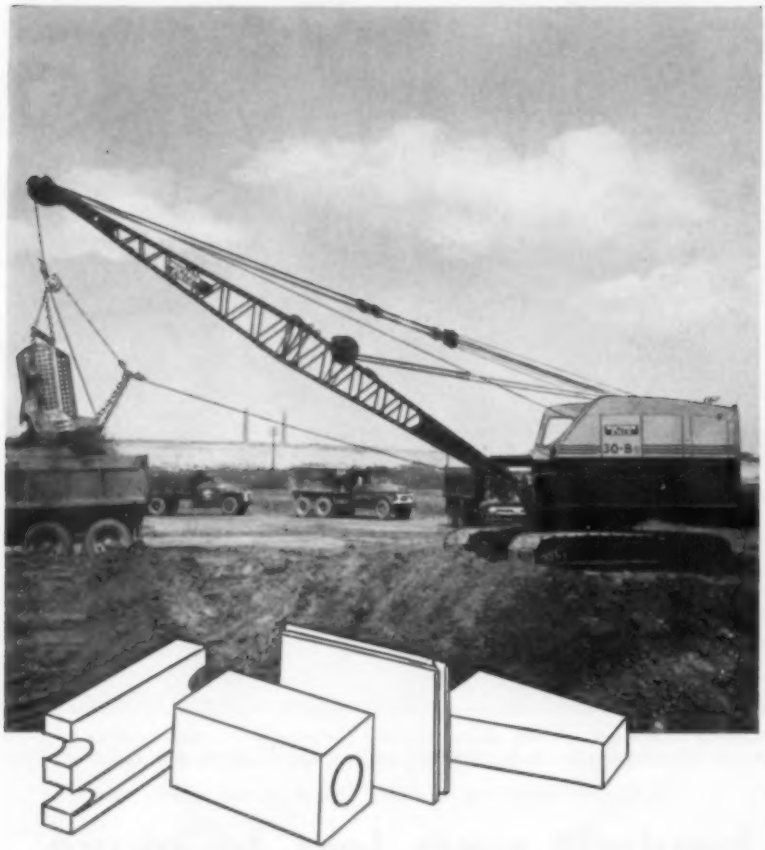
56-7-PE

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

"Brick & Clay Record" is published monthly by Industrial Pulbications, Inc., 5 S. Wabash, Chicago 3, Ill. Subscription price: U. S. A. and Canada, $5.00 per year; three years, $10.00; Foreign subscription price: $7.00 per year; three years, $15.00. Vol. 133, No. 1. Entered as Second Class Matter January 2, 1911, at the Post O..ce at Chicago, Ill., under the Act of March 3, 1879. Additional entry at Pontiac, Ill.



Cut production costs with a Bucyrus-Erie 30-B –BUILD BONUS PROFITS

A Bucyrus-Erie 30-B shovel or dragline can help you cut clay production costs. This 1-yd. profit-maker is fast in the pit . . . gives the operator a bigger load on every pass. Here's why:

Graduated air controls on main drums and swing clutches mean smooth, easy operation. You get power as you need it — not in one sudden blast. Smoother starts speed every cycle, mean longer service from all wearing parts. Fewer replacement parts and simplification of machinery mean less downtime — steadier production.

Put the Bucyrus-Erie 30-B on your *production-profit team.* Your distributor can tell you the details of this and other sizes . . . see him today! Bucyrus-Erie Company, South Milwaukee, Wisconsin. 542E58

BUCYRUS ERIE

MODERNIZE to economize!

LETTERS To the Editor

Pipe Issue

Editor, BRICK & CLAY RECORD—
I appreciate your letter . . . calling our attention to the extra curricular efforts on the part of BRICK & CLAY RECORD in bringing the story about the progress of our industry to people in high places whom we wish to influence.

Your letter also tends to remind me of my intentions to write to you and your associates, as well as compliment you, upon the wonderful job you did in preparing the Annual Clay Pipe Issue. Each year this annual issue becomes more interesting and impressive.

I realize that this is not just happenstance, but rather is brought about through the collective efforts of you and your entire staff in striving to serve the clay pipe industry in an effective and impressive way.

H. P. Wilhelmsen
W. S. Dickey Clay Mfg. Co.
Kansas City, Mo.

Esso-Ramtite Correction

Editor, BRICK & CLAY RECORD—
In the "News of Industry" section of the May issue of BRICK & CLAY RECORD, you had an article on Esso-Ramtite Co's. new plastic refractory plant at Siloam, Ky., which contained considerable incorrect information.

This plant will initially employ up to about 10 people and this figure includes supervisory personnel. Ultimately we expect to increase this figure to about 15. Your article stated 25 employees initially and about 100 to 125 later.

We do have 3 gas fired periodics and may add a fourth later, but never the 17 mentioned in your article. Would you be kind enough to print a correction?

Theo. Kauffman Jr., Pres.
Ramtite Co.
Chicago, Ill.

Ed. Note: We're sorry about the misinformation given in the news story, which was supplied by a correspondent in the Kentucky area. Our apology to President Kauffman.

Brick & Clay Record

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New clay lightweight unit could bring backup to industry, bring vast increase in clay tonnage in years to come.

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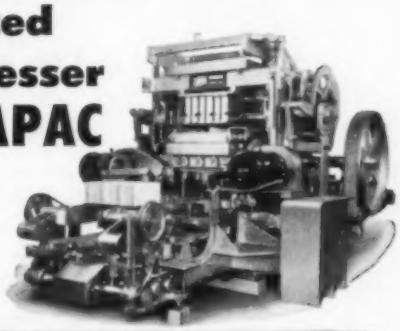
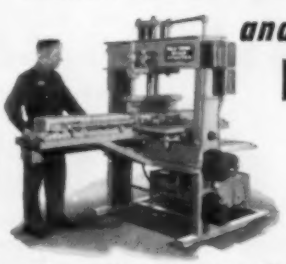
Attendees Chase and Mays at NCPMI meeting in Washington.

Give Customers Beautiful Split Block Like This—

made from Block produced on a Besser VIBRAPAC





and Split on a BES-STONE Block Splitter

Yes—split block *is* beautiful if it's made *right*, using a Besser Vibrapac and Bes-Stone Splitter—the combination that gives you NEW PROFIT OPPORTUNITIES plus SATISFIED CUSTOMERS. Get all the facts from your nearby Besser Representative, or write for literature to:

BESSER COMPANY
Complete Equipment for Concrete Block Plants
ALPENA, MICHIGAN, U.S.A.

"Shouldn't *Everybody* be told about Bickerstaff Brick Forks?"

"We try, ma'am . . . we try!"

Like you, we believe something really beneficial should be shared . . . and everybody that can benefit by the use of Bickerstaff Brick Forks, *should* be told about them. And we try, ma'am . . . we try. Of course, not *everybody* can use a Bickerstaff Fork . . . just the people in the brick and clay industry. We try to reach all of them and let them know how, in case after case, Bickerstaff Forks have helped to increase production and lower costly man-hours. And if they're still not convinced, all they have to do is (to borrow an old slogan) "ask the man that owns one!"

FOR CASE HISTORIES AND FULL INFORMATION ON HOW BICKERSTAFF BRICK FORKS HELP TO:

- Reduce labor to load and unload kiln from 72 to 12 man-hours . . .
- Increase kiln turnover 25% . . .
- Load directly from kiln to truck, freight car or inventory without rehandling . . .

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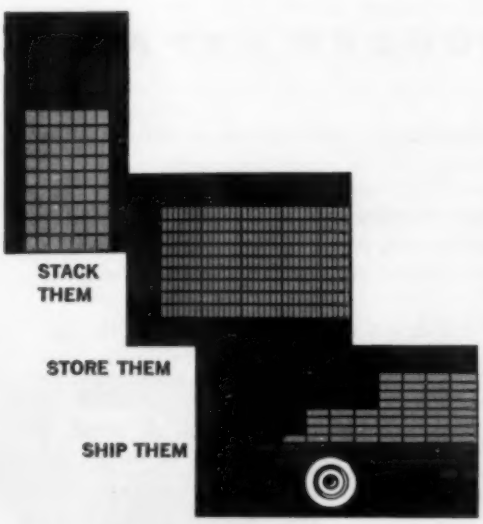
West Coast Representatives: WALTER C. STOLL & SONS
5028 Alhambra Ave., Los Angeles 32, California

CUSHIONING WITH CORRUGATED

MEANS LOWER SHIPPING LOSSES



Corrugated paper Bricartons eliminate call-backs and shipping losses...cut handling costs...help in palletizing. And they make a good impression on your customers, help build your business. Bricartons are available in sizes for all brick, tile, terra cotta and refractory brick. Complete information on sizes and deliveries promptly upon request. Write Canton Corrugated Box Company, 2820 Winfield Way, N.E., Canton 5, Ohio, Glendale 3-0151.

CANTON CORRUGATED BOX COMPANY
Division of St. Regis Paper Company

HELPING THIS PIPE PRODUCER EXPAND

This Marion 43-M is helping an Ohio producer of sewer pipe expand its operation.

The 1-yard Marion loads truck haulage units feeding a plant where steam presses and horizontal extrusion produce pipe sections for beehive firing. A new tunnel kiln is part of the expansion program.

The Marion handles its loading chores with a reserve margin of strength and power that helps assure many years of dependable service.

Marionair Control helps the operator dig and load quickly and confidently without late afternoon drops in production due to fatigue.

See your Marion Distributor or write for literature on the 43-M and other machines in the Marion line.

You get **MORE** *with* **MARION**

MARION POWER SHOVEL COMPANY • Marion, Ohio

A Division of Universal Marion Corporation

If you make BRICK . . . we can show you how to COLOR it

Until recently, brick coloring was largely confined to the use of colored glazes, yet relatively few manufacturers could fit glazing into their brick-making processes. As demand increased for more and more color on brick, we developed coloring methods which all face brick manufacturers can use. Colored engobes and colored sands are a direct result of our research, so Drakenfeld can now offer a coloring material to suit almost any brick processing setup.

Whatever your plans for producing colored brick, an experienced team of Drakenfeld color ceramists will gladly assist you with prompt, dependable solutions to your coloring problems. We cordially invite your inquiry.

SAND COLORS: If you use a sand mold, sand blast, or any kind of sand finishing operation, Drakenfeld has a complete palette of colors for you. They are colors you merely mix with your sand and apply by your normal sand coating technique. No change in processing—no special processing required. The cost is low.

ENGOBE STAINS: Engobes can provide a permanent colored surface for your brick at low cost. Engobe formulas available on request. The mixes are easy to prepare.

GLAZE STAINS: Strong yellows, clean pinks, stable blue-greens and grays. A complete line of quality stains . . . laboratory controlled to insure maximum workability and uniformity.

GLAZE SPECKS: Years of leadership in glaze production enable us to recommend the best speck for your needs, sized to exacting specifications.

PREPARED GLAZES: For brick manufacturers who wish to produce limited quantities of glazed brick without investing heavily in glaze preparation equipment. These glazes are supplied completely ground and ready to mix with water. Wide range of brick and pastel colors available.

CALL ON **Drakenfeld**

UR PARTNER IN SOLVING COLOR PROBLEMS

B. F. DRAKENFELD & CO., INC.

Executive Offices: 45 Park Place, New York 7, N. Y.

Factory and Research Center: Washington, Pa.

55-5

Pacific Coast Agents:

BRAUN CHEMICAL COMPANY, 1363 So. Bonnie Beach Place, LOS ANGELES 54, California, Phone: ANgelus 9-9311

BRAUN-KNECHT-HEIMANN COMPANY, 1400 Sixteenth Street, SAN FRANCISCO 19, California, Phone: HEmlock 1-8800

MATERIALS EQUIPMENT SERVICES

CLAY MOULDING—Machinery built in four sizes, for ware up to 12" diameter. Baird machinery for flower pots, ferto pots, fern pots, peat pots, saucers, etc. Also Baird pug mills available. Simmons Boiler & Machine Co., Detroit 4, Mich.
340/Circle on Reader's Service Coupon

CUTTER—A new green brick cutter for shapes is available, with well-balanced toggle action, smooth, clean and accurate cuts; quick change; safe. You can cut your shapes from vacuum extruded clots. Superior Supply Service, Inc., Bessemer, Ala.
341/Circle on Reader's Service Coupon

REFRACTORIES—Gem Clay Forming is ready to supply refractory requirements to your needs, light or heavy refractories; saggers, combustion chambers, insulating fire brick, stove liners, backwalls, etc. Gem Clay Forming, Inc., Sebring, Ohio.
342/Circle on Reader's Service Coupon

REFRACTORY PRESS—Steveco mechanical refractory press can be furnished with spinner and spinner drive. Equipment also for runner brick presses, crushers, wet or dry pans, etc. Stevenson Co., Wellsville, Ohio.
343/Circle on Reader's Service Coupon

SALT GLAZE—Can be improved with Rasorite Sodium Borate concentrates. Product is reportedly cheaper than borax or boric acid; gives fine results at low cost. Pacific Coast Borax Co., Div. of U. S. Borax & Chem. Corp., Los Angeles 5, or New York City 20.
344/Circle on Reader's Service Coupon

FEEDER—An Omega non-flood feeder can feed clay, additives, coloring. Has Rotolock to prevent flooding; scientific hopper design; bulk density control. Omega Machine Co., Providence, R. I.
345/Circle on Reader's Service Coupon

GREEN SCUM—Can be controlled by use of Minerva Fluorspar. Small amounts of fluorspar control vanadium efflorescence, when added to drypan in making buff or white face brick. Control of pastel shades is reported to be simplified. Minerva Oil Co., Eldorado, Ill.
346/Circle on Reader's Service Coupon

CEMENT GUN—You can save on furnace repair, refractory installation with Cement Gun. Two or three of your men can place a 1" to 6" lining in one continuous operation. Cement Gun Co., Allentown, Pa.
347/Circle on Reader's Service Coupon

HEAVY DUTY PRESS—The International Special Heavy Duty has push button operation. Features include line-boring of one-pieced welded steel frame at one setting to insure perfect shaft alignment with close tolerances; welded steel frame; pause de-airing. Unit can make cored brick with adaptation. International Clay Machinery Co., Dayton 1, Ohio.
348/Circle on Reader's Service Coupon

LUMNITE—Car tops made of Lumnite are reported to have these advantages; refractory concrete top adds to car stability; greater resistance to high temperatures and thermal shock; placement is fast, easy by plant labor. Universal Atlas Cement Co., New York City 17.
349/Circle on Reader's Service Coupon

STOODY WELDING—Hard facing can give you much greater life of parts. In examples, pug mill point augers that lasted less than a week were lasting for three weeks after hard facing with Stoody 21; barrel liners now last over a year, where before Stoody 21 they wore out in three months. Stoody Co., Whittier, Calif.
350/Circle on Reader's Service Coupon

UNI-PACS—Stanley Uni-Pacs accelerate the movement of brick by mechanical handling from kiln to customer; break apart for easy handling; are adaptable to your job needs. Stanley Steel Strapping, New Britain, Conn.
351/Circle on Reader's Service Coupon

BOYD PRESSES—The Harbison-Walker Hammond plant, all-new, has eight Boyd presses. These presses were called for in the blueprints. Chisholm, Boyd & White Co., Chicago 21, Ill.
352/Circle on Reader's Service Coupon

PACKAGING—System used by Kelsey-Ferguson saved $100,000 a year, and is producing a better brick pack for them. Of these savings, $26,000 a year come from reductions in cost of strapping and associated unitizing materials alone. Job was engineered and supplied by Signode Steel Strapping Co., Chicago 47, Ill.
353/Circle on Reader's Service Coupon

MIX-MULLER—The new Harbison-Walker plant at Hammond, Ind., uses three 2-½F Simpson Mix-Mullers. Units provide intensive controlled dispersion of moisture, binders and plastic materials, to pre-determined properties. Simpson Mix-Muller Div., National Engineering Co., Chicago 6.
354/Circle on Reader's Service Coupon

VIBRAPAC—Besser machine is designed for automation, with automatic feed control; automatic height control. UPT (Uni-Pressed Top) eliminates all core plate marks. Besser-Matic loads green block and unloads cured block, automatically. Many other features, such as automatic lubrication, are available in Vibrapac. Besser Co., Alpena, Mich.
355/Circle on Reader's Service Coupon

YALE TRUCKS—Give you wide-angle vision, fast cycle operation and greater load stability, maker says, in Yale G-3 Gas Trucks. Gas and LP gas trucks come in capacities of 15,000 to 20,000 lbs.; complete Yale line has capacities of from 2,000 to 20,000 lbs. Yale & Towne Mfg. Co., Philadelphia, Pa.
356/Circle on Reader's Service Coupon

STEELSTRAPPER—That's name of new Acme tool that tensions, seals, cuts steel strapping automatically, using air power with one-hand control. Operator just pushes control on handle to power-tighten strapping to predetermined tension. Then with another power control on A4 Steelstrapper, seals are applied and strapping cut without waste or effort. Acme Steel Co., Chicago, Ill.
357/Circle on Reader's Service Coupon

KOEHRING EXCAVATORS—New addition to the line is a model named 805; has heavy duty 2-yard capacity with 25' shovel boom and 18½' dual dipper sticks. Unit handles 2 to 3 yard dragline bucket; lifts up to 52 tons. Koehring Co., Milwaukee, Wis.
358/Circle on Reader's Service Coupon

BONNOT—Machinery is engineered to your local plant requirements; use of NiHard and other iron alloys provides quality wearing parts and long service; Bonnot engineers will help you overcome your particular problems. Bonnot Co., Canton 2, Ohio.
359/Circle on Reader's Service Coupon

FEEDER TABLE—Units by Hewitt-Robins have averaged only 68c per year for spare parts, per unit. Jones Feeder Table can provide uniform supply of material from unit designed for long life, low maintenance. Hewitt-Robins, Stamford, Conn.
360/Circle on Reader's Service Coupon

SPLIT LOADS—With use of Pack-Hauler you can deliver three separate loads of brick to three different locations, all from one initial loading, without need for strapping. American Truck & Body Corp., Martinsville, Va.
361/Circle on Reader's Service Coupon

RIGID FRAME—and prefabricated pipe structures are available from Varner with rigid frame clear spans of from 32' to 70' and up; pipe construction adaptable to your individual needs. R. G. Varner Steel Products, Inc., Pine Bluff, Ark.
362/Circle on Reader's Service Coupon

DRY PRESS DRIVE—Multi-Speed dry press drive is reported to give more brick of higher density and more uniform quality. Unit can help increase density, eliminate many of the air voids, help reduce segregation in the mold box. Ortruc, Inc., St. Louis, Mo.
363/Circle on Reader's Service Coupon

F-R-H MACHINES—One of these is producing 66 million brick per year for Marion Brick Corp., producing extra hard, uniform columns of clay. You can keep your machine operating at top efficiency with F-R-H replacement parts. Fate-Root-Heath Co., Plymouth, Ohio.
364/Circle on Reader's Service Coupon

CUTTERS—Platens for brick or tile are built at any level for optimum wire cutting angles. All are quick-change units that do not disturb the alignment of reel and gear assembly. Maximum brick: 27 per cut. Maximum tile: 5 12" pieces. Chambers Bros. Co., 52nd & Media Sts., Philadelphia 31, Pa.
365/Circle on Reader's Service Coupon

EXCAVATORS — You can cut costs in stripping and loading through more output, steady operation with little maintenance trouble, and ample strength with Bucyrus-Erie's 38-B. Bucyrus-Erie Co., So. Milwaukee, Wisc.
366/Circle on Reader's Service Coupon

COAL—Baltimore & Ohio Railroad coal traffic representatives can help you discover the most efficient low-cost bituminous coal for your particular requirements. Coal Traffic Dept., B&O Railroad, Baltimore 1, Md.
367/Circle on Reader's Service Coupon

HAMMERMILLS — Miller rotors throw particle against particle; material helps to pulverize itself. Double rotor hammermills have replaceable manganese steel hammers and tips. 50 and 100 ton capacities. Miller Equipment Co., P.O. Box 1566, Salisbury, N.C.
368/Circle on Reader's Service Coupon

SCREENS — Screen sections of Tyler Woven Wire are fabricated for all makes of vibrating screens in any mesh or metal. They are made up with hook-strip or bent-edge construction to suit the machine on which they are to be used. They make possible stretching and maintaining the screens at drum-head tension. The W. S. Tyler Co. Cleveland 14, Ohio.
369/Circle on Reader's Service Coupon

ELECTRODES — Due to reported high abrasion resistance the Super HF-20 electrodes for hardfacnig have increased service life of the built-up hammers and the mill housing itself has been doubled. HF-20 electrodes are stated to cost about 40% less than the type previously used. Available from stock in 3/16" diameter, to handle hardfacing jobs of almost any size. American Manganese Steel Div., Chicago, Ill.
370/Circle on Reader's Service Coupon

FORK-LIFT TRUCKS — The latest Towmotor models offer functional engineering, simplified dual entry compartment, full traction weight distribution, off-center visibility and centralized control, and precision steering. Towmotor Co., Cleveland 10, Ohio.
371/Circle on Reader's Service Coupon

VIBRATING SCREENS — Whether its scalping, separating, sizing, coarse screening and deeding of basic materials, control of particle size in processing quality materials or reclaiming waste materials for re-use, Syntron can provide an answer. Syntron builds 5 different types of screens in a wide range of sizes—single, double or triple deck models. Syntron Co., Homer City, Pa.
372/Circle on Reader's Service Coupon

SCREENS—A new electrical screen-heating arrangement is reported to boost output by as much as 50% with open mesh, and produce a better, more uniform product. Write for Book 2377-A. Link-Belt Co., Prudential Plaza, Chicago 1, Ill.
373/Circle on Reader's Service Coupon

HARDSURFACING — Abrasoweld and Faceweld can handle 9 out of 10 hard surfacing jobs yet is reported to cost less to buy. For hardsurfacing of muller knives, conveyor worms, crusher rolls, shafts. For severe impact and moderate abrasion, use Abrasoweld: for severe abrasion and moderate impact, Faceweld. Lincoln Electric Co., Cleveland 17, Ohio.
374/Circle on Reader's Service Coupon

TRUCK CRANE—Handles brick or block unpalleted or palleted or packaged, unloading off either side of the truck. Driver alone can unload truck. Unit supplied ready to mount on your trailer. Bradley Machine Co., Inc., Middleton, N. Y.
375/Circle on Reader's Service Coupon

How to Get Rush Information

If you want further information or literature describing the products in this special feature, just use the handy card you will find on page 18. Our Reader's Service Dept. will see that you obtain the requested information as quickly as possible.

GRADERS — Adams 660 standard blade extends a full 7½ ft. beyond wheel line, to give operator safe working margin. Extra-safe dual-braking system stops transmission as well as tandem drive wheels for sure, safe stops and minimum brake wear. Wide range of speeds give Adams advantage for working efficiently in any kind of material. All 80 to 150 hp Adams graders have 8 forward and 4 reverse speed transmission. LeTourneau-Westinghouse Co., Peoria, Ill.
376/Circle on Reader's Service Coupon

HAMMERMILL — One manufacturer reportedly paid for his American Hammermill in less than six months' operation at the current market price of Haydite, by crushing culled Haydite blocks into reusable material. American Pulverizer Co., 1061 Macklind Ave., St. Louis 10, Mo.
377/Circle on Reader's Service Coupon

KILN CARS—McNally Pitt built to your specifications with special heat-resisting iron, properly stress relieved. No lubricant is needed on cold rolled steel axles which are cleaned by compressed air. McNally Pittsburg Mfg. Corp., Pittsburg, Kan.
378/Circle on Reader's Service Coupon

POLY-V DRIVE—A totally new concept of power transmission is claimed to deliver up to 50% more power than a conventional V-belt drive of equal width. A single-endless belt with parallel v-ribs runs on sheaves specially designed to mate precisely with belt ribs, giving uniform pull, even load drive over the full sheave width. R/M Poly-V belts have eliminated the matching problems of multiple V-belt drives. Raybestos-Manhattan, Inc., Passaic, N. J. will supply further information.
379/Circle on Reader's Service Coupon

CRAWLER — Koehring 605 has been stripping clay and shale 18 hours a day on one location. Boom lengths on this model range from 50 to 100 feet, drag buckets from 1½ to 2½ cu. yds. Koehring Co., Milwaukee 16, Wis.
380/Circle on Reader's Service Coupon

ENGINEERED AIR HANDLING—to correctly apply fan equipment is offered by Robinson. Get the right fan to do the right job—volume-wise, pressure-wise, construction-wise. Robinson Ventilating Co., Zelienople, Pa.
381/Circle on Reader's Service Coupon

BUILDINGS — Prefabricated pipe kiln buildings, storage buildings, and grinding buildings with steel, aluminum or asbestos covering according to your specifications are offered by Southern Fabricating Inc., Box 97, Staley, N.C.
382/Circle on Reader's Service Coupon

SCREENS—Modern and efficient electric heating equipment. Facts on Universal screens and Unilec heating are available in Catalog No. 150. Universal Vibrating Screen Co., Racine, Wisc.
383/Circle on Reader's Service Coupon

ROCKFACER—Claimed to pay for itself in 90 days, Rockfacer chips a straight edge on your brick, eliminating hammer-and-chisel methods. Machine is said to average 1250 brick per hour. Send a sample of your brick and have it Rockfaced. Rockfacer Co., 503 Hickory Tree Rd., P.O. Box 547, Mesquite, Tex.
384/Circle on Reader's Service Coupon

KILN CARS—can be moved easily with the Gravely LS Tractor. Low speed, 5 HP, yet powerful enough to move loaded cars up to 310,000 lbs. Gravely Tractors Inc., Box 65, Dunbar, W. Va.
385/Circle on Reader's Service Coupon

KILN CAR WHEELS — Henderson Clay Products of Henderson, Tex., reports praise for Sanford-Day wheels and bearings. S-D's "Floater" wheel is claimed to remain in perfect alignment, needing no adjustment once bearing nut is tight. Enclosed outer hubs and protected inner hubs reportedly eliminate dust, retain lubricant. Sanford-Day, Knoxville, Tenn.
386/Circle on Reader's Service Coupon

AMERICA ALWAYS OUTPERFORMS ITS PROMISES

We grow so fast our goals are exceeded soon after they are set!

7 BIG REASONS FOR CONFIDENCE IN AMERICA'S FUTURE

1. More People—Four million babies yearly. U. S. population has *doubled* in last 50 years! And our prosperity curve has always followed our population curve.

2. More Jobs—Though employment in some areas has fallen off, there are 15 million more jobs than in 1939—and there will be *22 million more* in 1975 than today.

3. More Income—Family income after taxes is at an all-time high of $5300—is expected to pass $7000 by 1975.

4. More Production—U.S. production *doubles* every 20 years. We will require millions more people to make, sell and distribute our products.

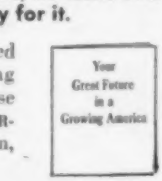
5. More Savings—Individual savings are at highest level ever—*$340 billion*—a record amount available for spending.

6. More Research—*$10 billion* spent each year will pay off in more jobs, better living, whole new industries.

7. More Needs—In the next few years we will need more than *$500 billion* worth of schools, highways, homes, durable equipment. Meeting these needs will create new opportunities for everyone.

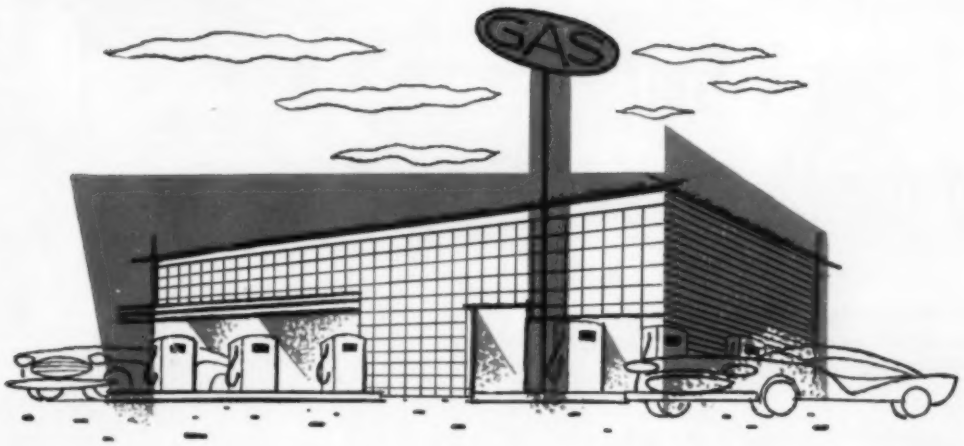
Add them up and you have the makings of another big upswing. Wise planners, builders and buyers will act *now* to get ready for it.

FREE! Send for this new 24-page illustrated booklet, "Your Great Future in a Growing America." Every American should know these facts. Drop a post card today to: THE ADVERTISING COUNCIL, Box 10, Midtown Station, New York 18, N. Y.

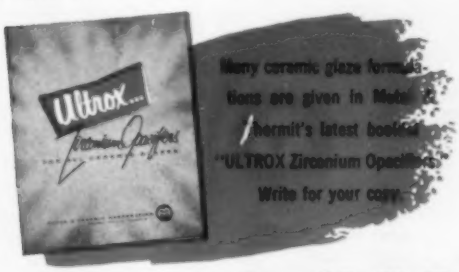


Ultrox

BRICK AND TILE GLAZES *are formulated for quality*



Glazes used for structural brick and tile call for top quality glaze constituents. That's why Ultrox® Zirconium Opacifiers are selected wherever glaze specifications demand uniformity in color and texture, stability at specific glaze maturing temperatures, maximum opacity at minimum cost, and other desirable properties.



Since ceramic glazes are affected by the composition of the bodies to which they are applied and the firing conditions to which they are subjected, standard glaze formulations may need to be modified for the best results. Metal & Thermit's technical service department has developed hundreds of such formulations and adapted them to specific body compositions and firing conditions. We will be glad to help on your formulation or ceramic glaze problems, too. Just write, or give us a call.

METAL & THERMIT
CORPORATION

GENERAL OFFICES: RAHWAY, NEW JERSEY

METAL & THERMIT—UNITED CHROMIUM OF CANADA, LIMITED • REXDALE, ONT.

M&T CERAMIC PRODUCTS

GLAZE OPACIFIERS
Ultrox® Ultrox 500W Tin Oxide

ENAMEL OPACIFIERS
Antimony Oxide Sodium Antimonate Zirconium Silicate

CERAMIC MINERALS
Zircon, Milled Rutile, Milled

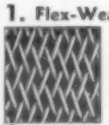
ADDITIVES FOR BARIUM TITANATE DIELECTRICS
Crystalline Stannates of Bismuth, Lead, Calcium, Magnesium and others

Shock loads no problem for Super V-Belts on punch press

Severe shock loads, which caused standard V-belts to fail, were no problem for Gates Super Vulco Ropes on this punch press.

No other V-belt has ALL these advantages

1. Flex-Weave Cover (U. S. Pat. 2519590)



A Gates exclusive: provides greater flexibility . . . prolongs belt life . . . helps deliver more power to driven machine.

2. Concave Sidewalls (U. S. Pat. 1813698)

Note the concave sides shown in Fig. 1. As belt bends, concave sides become straight, making uniform contact with sheave goove (Fig. 1-A). Even contact means uniform wear . . . far longer belt life.

3. Tough, resilient Tensile Cords

Super strong and resilient; provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required, save weight and space.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmosphere).

5. Oil, Heat, Weather Resistant

Made with special rubber compounds, Super Vulco Ropes stand up longer under all conditions.

TPA 315

Gates

World's Largest Maker of V-Belts

Especially designed to handle the heaviest shock loads, Gates Super Vulco Ropes solve tough drive problems — reduce both maintenance and replacement costs.

For example: Mr. Daniel Rusinow, president of the R & D Manufacturing Co., Detroit, Michigan, needed to improve efficiency in a 250-ton punch press. The press was originally driven by flat belts, but these slipped and proved unsatisfactory.

Mr. Rusinow first replaced the flat belt drive with standard V-belts, but the severe shock loads of the punch operation caused the belts to fail.

A superior shock-absorbing drive was needed — the local Gates Field Engineer was consulted, and Super Vulco Ropes recommended for the job.

Mr. Rusinow commented, "After our experience with other V-belts, I did not believe it possible to design such an excellent drive, but Gates engineering service and Super V-Belts proved the right answer to the problem."

● **Drive data and design assistance are quickly available to you. Simply call your nearby Gates distributor. Gates V-Belt stocks are carried in all major industrial centers.**

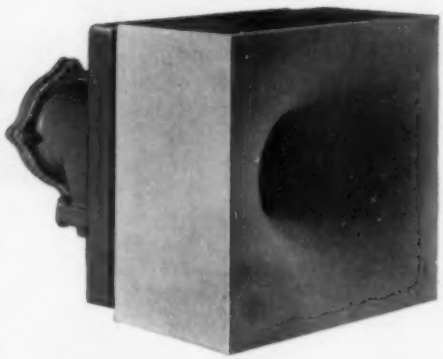
The Gates Rubber Company
Denver, Colorado

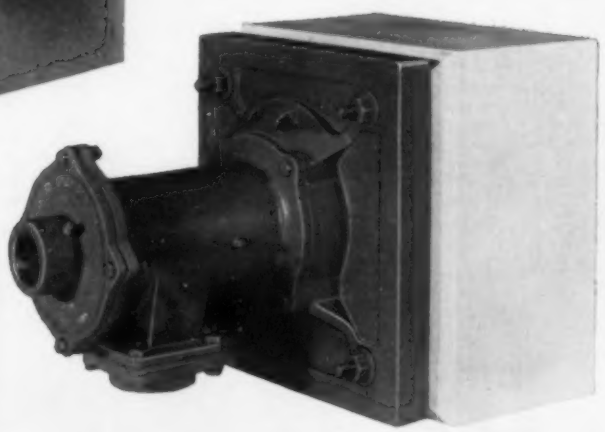
Gates Super VULCO ROPE Drives

40% more Horsepower Capacity

North American

FLAT FLAME BURNERS





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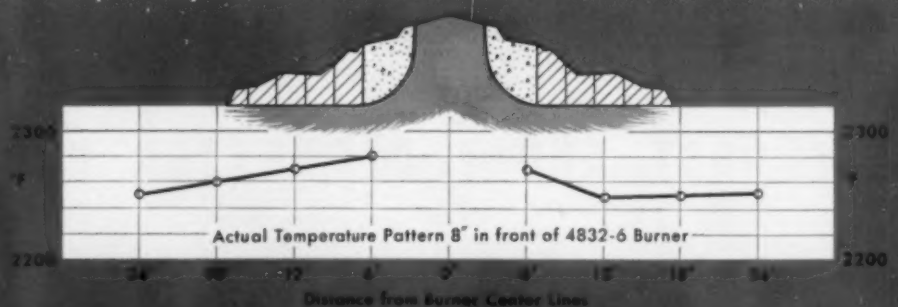
Simplify Furnace Construction • Heat Large Areas Uniformly
Fire Directly Without Flame Impingement
Flame Shape Adjustable • Ultra-Stable • Wide Fuel-Air Ratio Range

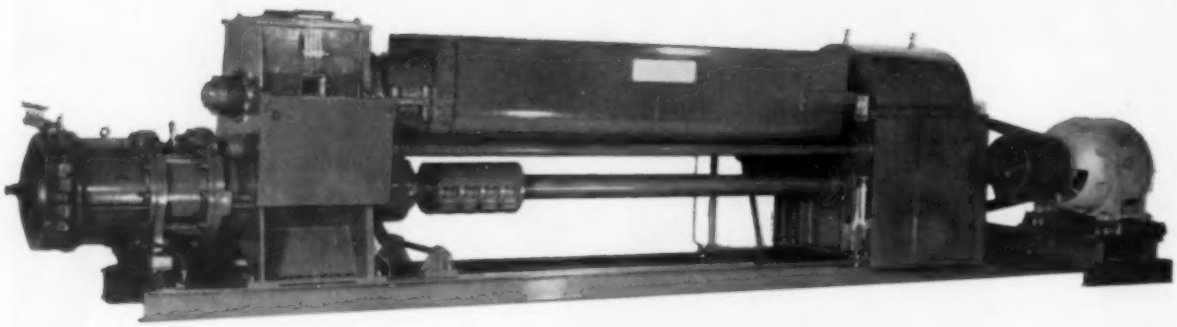


For engineering information consult your nearby N. A. office or write for Bulletin 4832 ▼

The North American Manufacturing Co.
COMBUSTION ENGINEERS
CLEVELAND 5, OHIO

4832

BEST IN THE BUSINESS

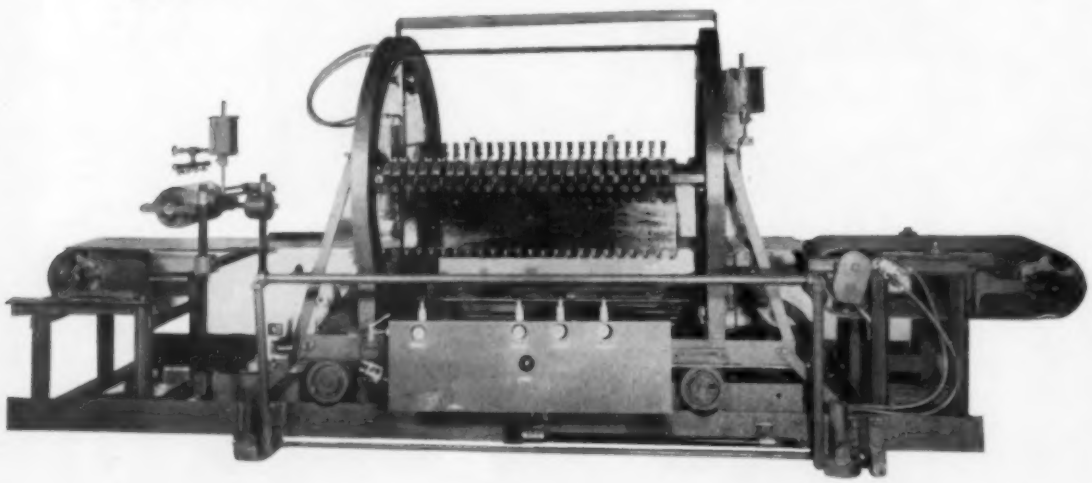


New No. 12 AC BRICK MACHINE

Hi-Power model, up to 300 HP, combines all-steel construction and generous use of alloy materials to match today's brick and hollow tile standards with safety factors provided for tomorrow's more exacting extrusion problems. 18¾" auger, fed by 21" augers in vacuum case; 12' pug mill tub.

No. 30 Series CUTTER

Four models of the #30 series, each available in length up to 5 12-in. cuts, are becoming nationally recognized as providing either maximum accuracy or high-speed bar cutting beyond the range of other machines. Quick-change platen assemblies and conveyor tailored to your exact requirements.



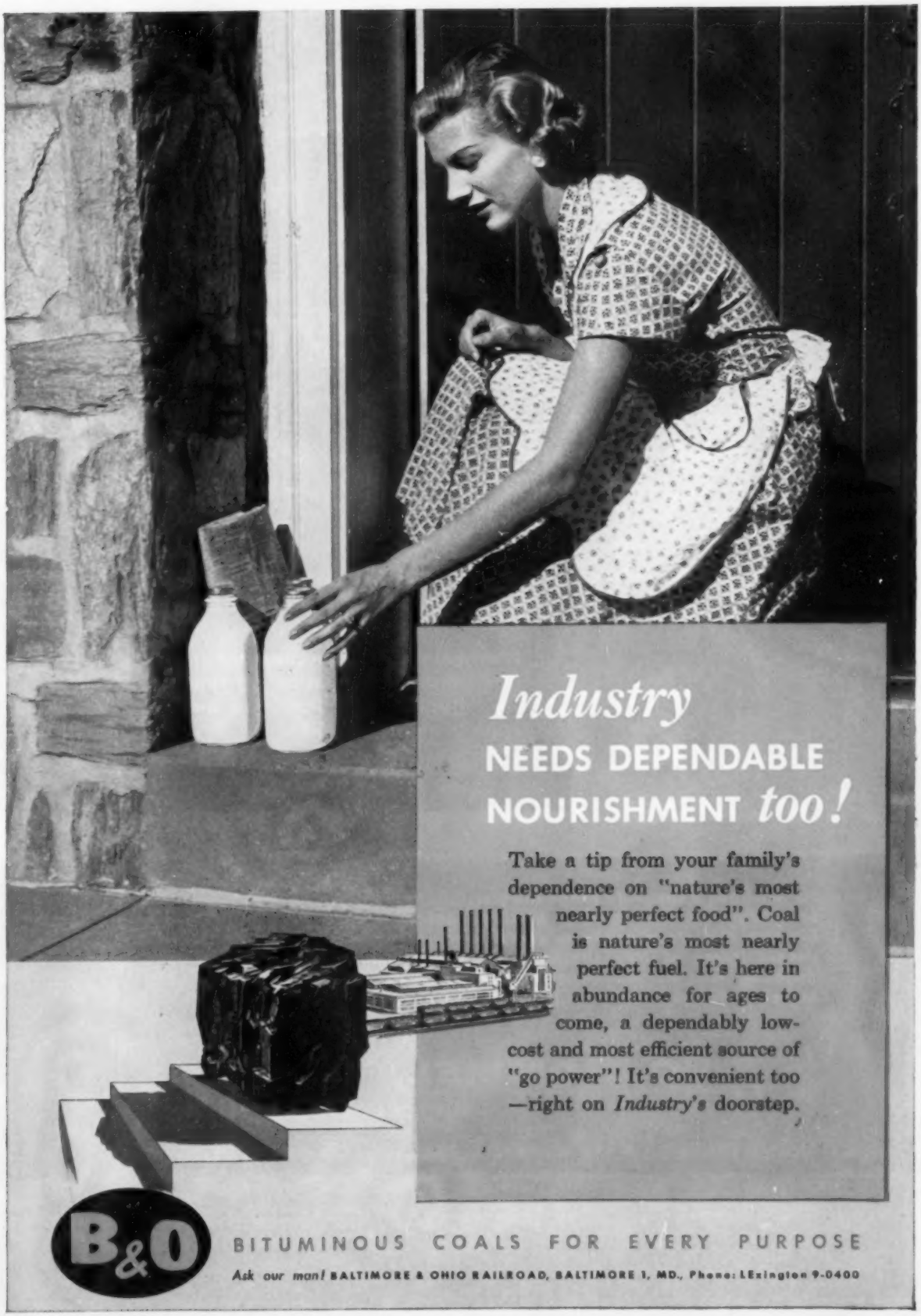
AT LESS COST AND FOR GREATER PROFITS

Inquire today about the machines for your production.

SERVING YOUR INDUSTRY FOR OVER 100 YEARS

CHAMBERS BROTHERS CO. 1857 1958

52nd & Media Streets • PHILADELPHIA 31, PA.


Industry
NEEDS DEPENDABLE
NOURISHMENT too!
Take a tip from your family's dependence on "nature's most nearly perfect food". Coal is nature's most nearly perfect fuel. It's here in abundance for ages to come, a dependably low-cost and most efficient source of "go power"! It's convenient too —right on Industry's doorstep.
B&O
BITUMINOUS COALS FOR EVERY PURPOSE
Ask our man! BALTIMORE & OHIO RAILROAD, BALTIMORE 1, MD., Phone: LExington 9-0400

Hommel

COLOR SELLS BRICKS!

It takes rich, vibrant color to sell bricks . . . to create a contrast in building construction that distinguishes the job.

Hommel colors have constant uniformity. They are solidly resistant to all types of weather . . . quality formulated to increase the life span of modern bricks.

Hommel has a complete range of colors . . . for any type of application . . . staining, glazing, engobe or sand-blasting. We stand ready to confer with you on firing ranges, types of clay structure, and color application methods. Your Hommel representative is always ready to help solve your technical problems.

THE **O. HOMMEL** COMPANY

PITTSBURGH 30, PA.

WEST COAST · 4747 E. 49TH STREET · LOS ANGELES

BUYING equipment and materials???

New Feature—**You can now get further information on items in the *advertising pages* by circling page numbers on the card.**

1 Read the New Products Information

ON PAGES 21, 22

also

Materials, Equipment & Services

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PAGE 22

2 MAIL THIS CARD

Your choice of latest manufacturers' literature and full details concerning new products, equipment, materials and services described in the above sections will be rushed to you direct from manufacturer.

Please Note—For convenience of other members of your organization, there is another post card in this issue facing page 58.

Please send me more information concerning the items I have Circled.

7-58

340-Simmons Boiler
341-Superior Supply
342-Gem Clay Forming
343-Stevenson Co.
344-Pacific Coast Borax
345-Omega Machine
346-Minerva Oil
347-Cement Gun
348-International Clay
349-Universal Atlas
350-Stoody Co.
351-Stanley Steel
352-Chisholm, Boyd & White
353-Signode Steel
354-Simpson Mix-Muller
355-Besser Co.
356-Yale & Towne
357-Acme Steel
358-Koehring Co.
359-Bonnot Co.
360-Hewitt-Robins
361-American Truck
362-R. G. Varner
363-Ortruc
364-Fate-Root-Heath
365-Chambers Bros.
366-Bucyrus-Erie
367-Baltimore & Ohio
368-Miller Equipment
369-W. S. Tyler
370-American Manganese Steel
371-Towmotor
372-Syntron Co.
373-Link-Belt
374-Lincoln Electric
375-Bradney Machine
376-LeTourneau-Westinghouse
377-American Pulverizer
378-McNally-Pittsburg
379-Raybestos-Manhattan
380-Koehring
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385-Gravely Tractors
386-Sanford-Day
387-American Lava
388-Hyster Co.
389-Acme Steel
390-Stearns Magnetic
391-Hanna Engineering
392-Manufacturers Equip.
393-Eberhard Bauer
394-Shaw-Box Crane
396-Link-Belt
397-Uhrden Co.
392-Davey Compressor
399-Bin-Dicator
400-Syntron Co.
Page 2 Bonnot Co.
Page 3 Barber-Greene Co.
Page 4 Bucyrus Erie Co.
Page 5 Besser Co.
Page 6 Bickerstaff, Inc.
Page 7 St. Regis Paper Co.
Page 8 Marion Power Shovel
Page 9 Drakenfeld (B. F.)
Page 13 Metal & Thermit
Page 14 Gates Rubber Co.
Page 15 North American Mfg.
Page 16 Chambers Brothers
Page 17 Baltimore & Ohio
Page 18 Hommel (O.) Co.
Page 19 North State Pyrophyllite
Page 20 Miller Equipment
Page 23 Besser Co.
Page 24, 25 Kaiser Aluminum
Page 26 Sanford Day
Page 27 Kimberly-Clark
Page 29 Builders Equipment
Page 30 Stoody Co.
Page 31 Toronto Foundry
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Page 37 Ferro Corp.
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Page 66 Universal Vibr. Screen
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Page 67 Brook Motor Corp.
Page 68 Koehring Co.
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Page 69 Chase Foundry
Page 69 Superior Supply Service
Page 69 Williams Patent Crusher
Page 70 Manufacturers Equipment
Page 70 National Paint & Manganese
Page 70 Ton-Tex Corp.
Page 71 Des Moines Glove
Page 71 Tyler (W. S.) Co.
Page 73 Fernholtz Machinery Co.
Page 74 Steele (J. C.) & Sons
Page 75 Fate-Root-Heath Co.
Page 76 American Clay Machine

NAME ..... TITLE .....

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BRICK & CLAY RECORD

5 South Wabash Avenue

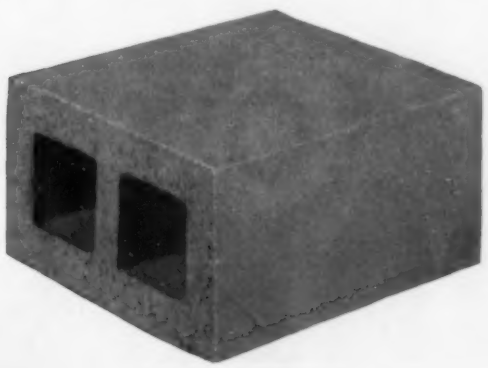
Chicago 3, Illinois

FIRST CLASS
Permit No. 183
Chicago, Ill.

Photo shows PACO 4½" x 8" x 9" car tops set on end and used as perimeter block. Top deck is constructed with 4½" x 8½" x 18" PACO car tops. Each corner has a 7" x 8½" x 9" cored corner block. Perimeter and corner blocks are filled with lightweight insulation.

PACO CAR TOPS can cut your replacement costs as much as 50% — and increase your profits! The reason is simple. Paco Car Tops are made from the mineral pyrophyllite. This unusual, superior raw material permits the manufacture of thinner wall, larger core car top that is lightweight, stronger and highly resistant to extreme thermal shock.

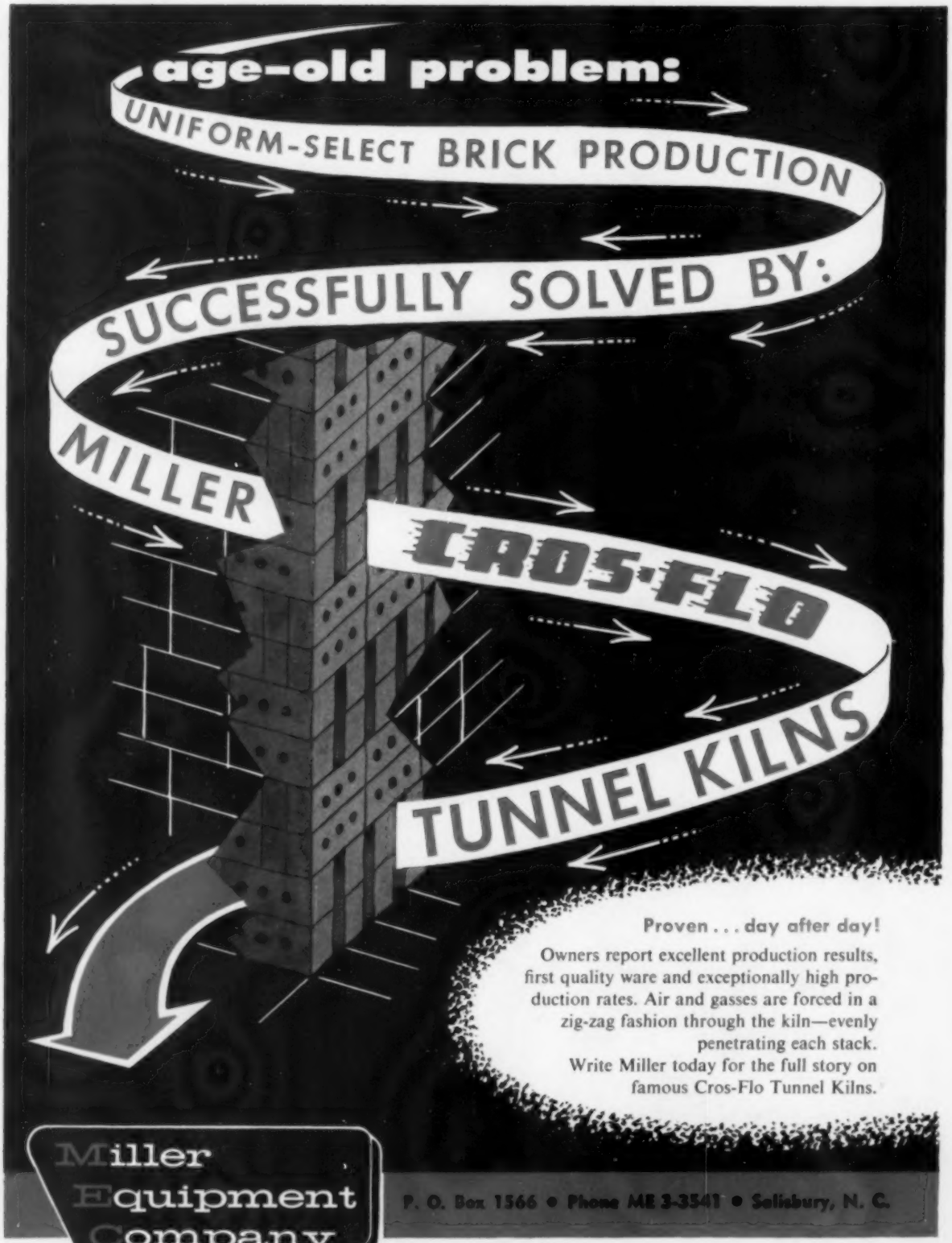
PACO CAR TOPS do not have a softening point below actual fusing point, providing greater resistance to hot load deformation. The result is better, more efficient production. Paco Car Tops are easy to handle and install, and simple to replace individually as needed. There is a PACO engineer as close as your telephone—or write for complete information!



NORTH STATE PYROPHYLLITE COMPANY, INC.

Telephone BRoadway 4-7055 Greensboro, North Carolina

OTHER PACO PRODUCTS INCLUDE: • Paco Plastic • Pacocast • Paco H.T. Cements • Paco Fire Brick Mortar • Paco Side Car Brick • Paco Fire Brick • Paco Ladle Lining • Paco Heatzone Compound



Proven . . . day after day!

Owners report excellent production results, first quality ware and exceptionally high production rates. Air and gasses are forced in a zig-zag fashion through the kiln—evenly penetrating each stack.
Write Miller today for the full story on famous Cros-Flo Tunnel Kilns.

Miller Equipment Company

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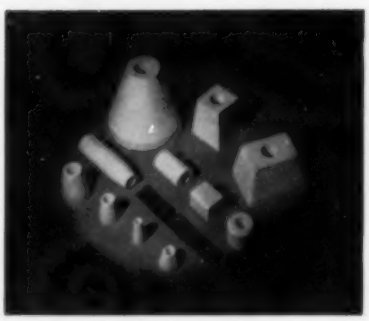
NEW EQUIPMENT



Ceramic Core Blocks

Special sizes and shapes of ceramic core blocks are now on the market. The maker reports that brick manufacturers have said that these special ceramic cores give up to 30 times longer life than the other best material tested. The same report says that 6 to 10 million brick have been produced with no measurable wear on the AlSiMag ceramic core blocks. The units are made in a wide range of standard sizes, in addition to special sizes and shapes.

American Lava Corp., Chattanooga, Tenn.

387/Circle on Reader's Service Coupon

Hyster Clutch

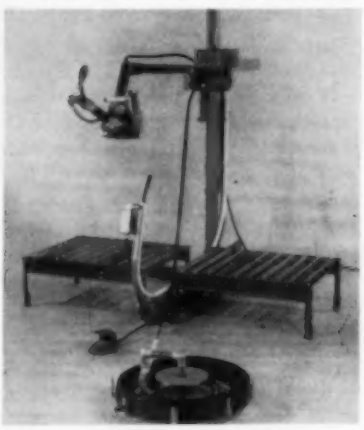
An entirely new type of clutch facing that reportedly will outlast conventional clutches in hard service lift truck applications is now standard equipment in Hyster cushion tired lift trucks from 6000 to 8000 lbs. capacity. The new clutch is composed of metallic friction materials which are fused with refractory or ceramic agents to produce a hard surface face.

Hyster Co., Portland, Oregon.

388/Circle on Reader's Service Coupon

Power Strap Feed Unit

A new Power Strap Feed unit by Acme will feed steel strapping around a package at the rate of 5 fps, eliminating the necessity of the strapping



operator walking around the package to encircle it with strapping, or the need for a second man on the other side of the package. The unit, E41, handles any steel strap from 3/8" x .010 to 3/4" x .023; can feed around packages up to 56" high and 48" wide. Three models are available.

Acme Steel Co., Chicago.

389/Circle on Reader's Service Coupon

Drum Separator

A new permanent magnet drum is the latest development in a line of high-efficiency tramp iron separators using Indox V ceramic magnets, Stearns reports. The new drum separator is designed for easy installation in any enclosed chute or spout conveying system. In the new separator, a revolving stainless steel cylinder inside a welded steel housing carries

material over a stationary Indox V magnet assembly.

Stearns Magnetic Products, Milwaukee, Wis.

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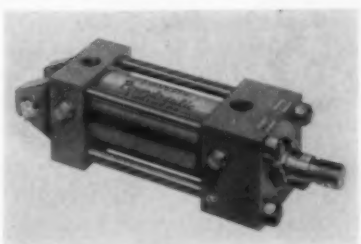

Hydraulic Cylinder

Hanna has announced a new high pressure hydraulic cylinder called the Powrdraulic series. These are rated at 2000 psi and 3000 psi hydraulic pressures and are reported to have a high safety factor. There are 13 basic mounting styles available, and a choice of rod sizes for each bore.

Hanna Engineering Works, Chicago.

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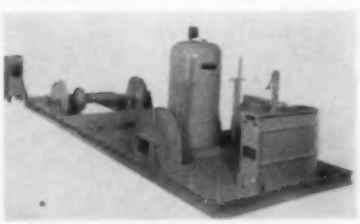


Battery Powered Transfer

A new series of battery powered transfer cars, featuring push-button controls, including two forward speeds and reverse, fingertip control, positive acting foot and hand brakes, extra heavy electrical relays, heavy duty battery, high torque D. C. motor and a selenium rectifier for battery charging is being made by Manufacturers Equipment Co., Dayton, Ohio.

392/Circle on Reader's Service Coupon

(Continued on very next page)

Slow Speed Motors

Gear motors rated as low as 1/50 hp with outputs down to 0.3 rpm are in the new Bauer line. The line also includes motors up to 30 hp and 400 rpm, but the unusual feature is the

number made below 1 hp. The units are totally enclosed, reported to be unaffected by humidity, dust, or outdoor operation. The motors are made by Eberhard Bauer GMBH of West Germany, handled in this country by Georg von Opel Corp., 15 William St., New York City.

393/Circle on Reader's Service Coupon

Electronic Recorder

Hays has introduced a new circular chart recorder that has a maximum of four records possible on one circular chart. The unit utilizes a cam in all of its electronic receiver units which can correct for nonlinearity of input signals. Two different electronic receivers are available.

Hays Corp., Michigan, Ind.

394/Circle on Reader's Service Coupon

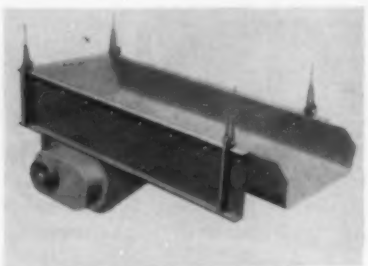
Packaged Cranes

Marketing has begun of a new line of "Load Lifter" underhung crane kits known as the NH-SUH crane assembly. The packaged cranes are available in capacities from ½ to 10 tons, with spans up to 50 feet. Each kit includes two completely assembled end trucks, required cross shaft

bracket and bearing assemblies and shaft couplings, 20′ hand chain, chain wheel complete with guide, and complete assembly instructions.

Shaw-Box Crane & Hoist Div., Manning, Maxwell & Moore, Muskegon, Mich.

395/Circle on Reader's Service Coupon

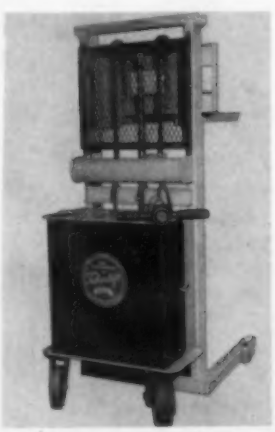


Vibrating Feeder

Designed for controlled feeding of bulk materials at high rates, the new Straightline geared counterweight vibrating feeder operates with a high intensity straight-line stroke that ranges in amplitude from ¼ to ½ in., up to 900 rpm. Vibrator speed can be adjusted by changing variable speed belt drive; hopper gate can be adjusted to control material depth; and horizontal stroke can be adjusted

Link-Belt Co., Chicago.

396/Circle on Reader's Service Coupon

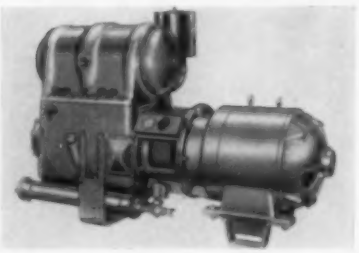


Mobile Lift Truck

A completely new, fully powered mobile fork lift truck, the Tubarlift Champion Stroller model 777, is now being produced. The unit features Hydrowheel fluid drive, a transmission that eliminates sprockets, chains and gears. The unit handles loads up to 1,000 lbs. at lifting heights up to 60 inches.

Uhrden, Inc., Dennison, Ohio.

397/Circle on Reader's Service Coupon



Heavy Duty Compressor

A new 100 hp heavy duty Hydrovane Rotary industrial compressor is now being made by Davey. Designed for continuous operation at 100 psi, the unit delivers 420 cfm at that pressure. It is also suitable for intermittent use at pressures to 125 psi. The unit takes 15 sq. ft. of floor space.

Davey Compressor Co., Kent, Ohio.

398/Circle on Reader's Service Coupon

Bin-Dicator

A consolidated catalog is available for three products made by Bin-Dicator for all bulk material, level indication and control. The book includes photographs, cutaway and schematic drawings, outline dimensions, general specifications and other material.

Bin-Dicator Co., Detroit.

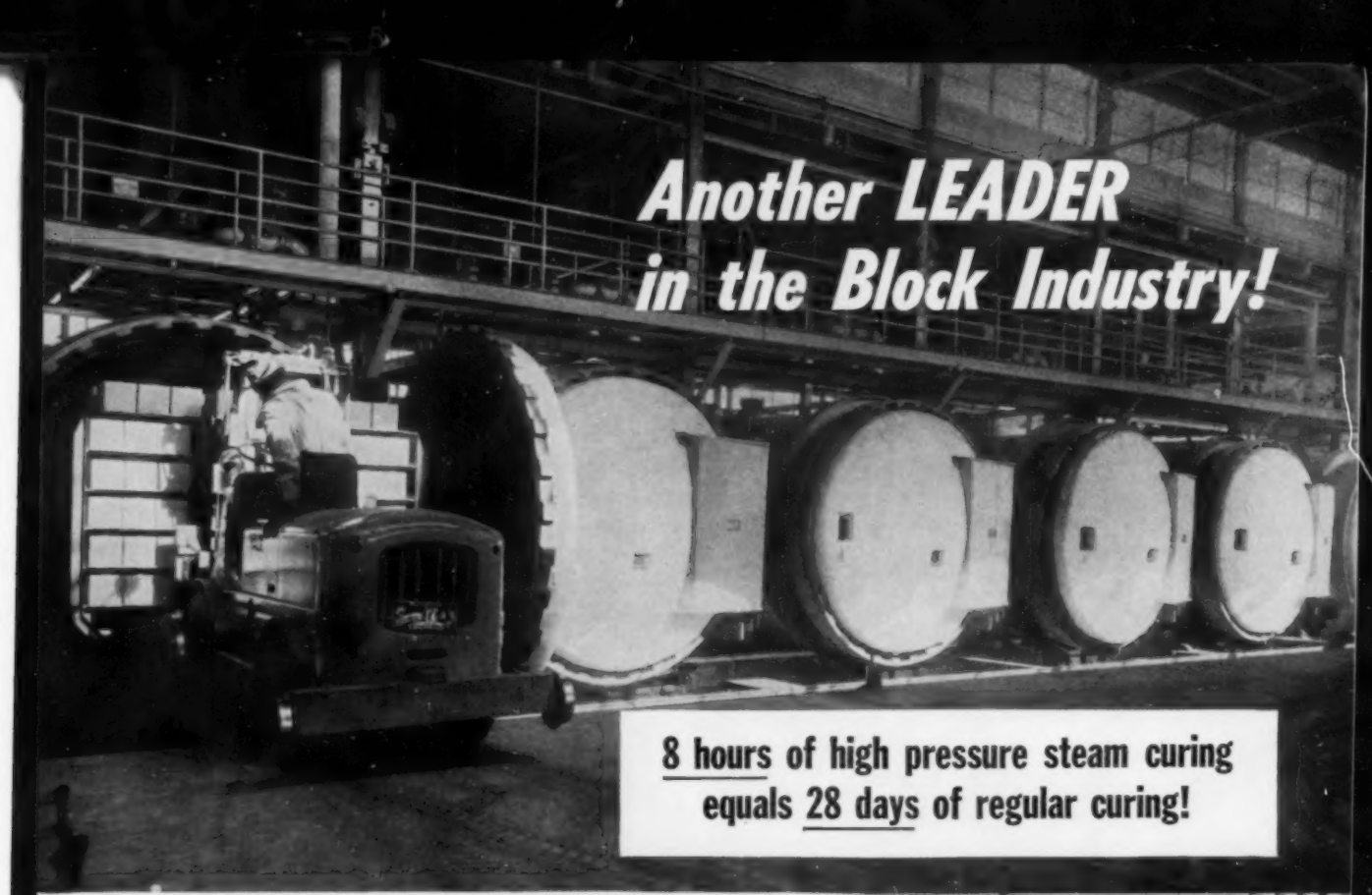
399/Circle on Reader's Service Coupon

Weigh Feeders

Syntron has announced publication of a new catalog on Weigh-Feeder equipment. The 12 page book gives complete descriptions, data and specifications on nine Gravimetric feeders, automatic batch weigh plants and bag weigh machines.

Syntron Co., 620 Lexington Ave., Homer City, Pa.

400/Circle on Reader's Service Coupon



Another LEADER in the Block Industry!

8 hours of high pressure steam curing equals 28 days of regular curing!

Lift truck loading green block into kiln. Truck equipped with steel flanged wheels to fit tracks.

Cinder Block Inc. Pioneer Detroit Block Plant Speeds Up Delivery of VIBRAPAC Masonry Units with HIGH PRESSURE STEAM CURING

Cinder Block Inc., one of the nation's largest block plants, recently completed a half million dollar expansion program that will enable the company to greatly increase its production of lightweight masonry units.

An important phase of the expansion program was the installation of six modern autoclaves, each kiln holding 2700 units. By operating two curing cycles daily, the plant has a capacity of 32,400 units, 8" or equivalent, per day. This high-pressure steam curing system has many advantages. First of all, it results in a better block with decidedly less shrinkage, and units available within 24 hours. Less yard space is required for storage and customers get faster block deliveries.

Cinder Block Inc. is truly a Besser-equipped plant. They installed their first Besser machine, a super tamper, in 1934. Today, they operate three modern Vibrapacs, all with automatic feed control and front pallet feed. The company also has Besser Block Cubers, Brickveyors and Attachment Racks.

If you want to make money in the block business, look to Besser for better equipment.

BESSER Company

DEPT. 139 • ALPENA, MICHIGAN, U.S.A. • *First in Concrete Block Machines*

A7-154

Cinder Block executives: Walter Horn, Pres.; Robert Horn, V.P.; Herb Vincent, Sales Mgr.; Arthur Leece, Prod. Mgr.; and Frank Haisch, Plant Supt.

Besser Attachment Racks for storage of molds and stripper heads.

★ *This is the 143rd of a series of ads featuring leaders in the Concrete Products Industry who are stepping up block production with Besser Vibrapac machines.*

New modern office building of Cinder Block Inc. — a good example of sound masonry construction.

3 new Besser Vibrapacs installed in Cinder Block plant.

Freeport Brick Co. Plant, Freeport, Pennsylvania. Dimensions: 640′x 100′x 22′.
Architects, Engineers and General Contractor: Freeport Brick Co.

Sub-Contractor for Roofing and Siding: Callery Industries, Inc.
130 Hillvue Lane, Pittsburgh 37, Pennsylvania.

A KAISER ALUMINUM ROOFING & SIDING SHEET TO SUIT YOUR NEEDS

Ribbed Siding

Thickness: 0.032" and 0.040"
Length: 5' to 22' in 6" increments and 22' 5"
Width: 41⅛" overall
Rib Configuration: 1" deep — 4" and 8" pitch
Finish: Stucco Embossed

Also available with rib configuration: 1½" deep — 5.33" pitch. Sheet thickness 0.032". Lengths 5' to 12' in 6" increments. Other specifications on request.

V-Beam Roofing & Siding

Thickness: 0.040" and 0.051"
Length: 5' to 22' in 6" increments and 22' 5"
Width: 41¼" overall
V-Configuration: 1⅛" deep — 4⅛" pitch
Finish: Stucco Embossed

Industrial Corrugated Roofing & Siding

Thickness: 0.024" and 0.032"
Length: 5' to 12' in 6" increments
Siding Width: 33⅛" and 47⅛" overall
Roofing Width: 15" and 48⅛" overall
Corrugation: ⅛" deep — 2.67" pitch
Finish: Plain Mill and Stucco Embossed.

Flat Sheet Roofing & Siding

Thickness: 0.024" and 0.032"
Finish: Plain Mill and Stucco Embossed

Full specifications on request.

NOTE: Kaiser Aluminum also offers a complete selection of flashing sheet, formed flashing, closures and other accessory building items.

NEW! INSULATED ALUMINUM "SANDWICH" WALLS

Choose From These and Other Sandwich Combinations

Inner Skin: 0.024" Industrial Corrugated Siding
Outer Skin: 0.032" Ribbed Siding—5.33" pitch

Inner Skin: 0.024" Industrial Corrugated Siding
Outer Skin: 0.032" Ribbed Siding — 4" pitch

Inner Skin: 0.024" Industrial Corrugated Siding
Outer Skin: 0.032" Ribbed Siding — 8" pitch

Inner Skin: 0.024" Industrial Corrugated Siding
Outer Skin: 0.032" Industrial Corrugated Siding

LONGEST LIFE LOW INITIAL COST!

Freeport Brick Company—one of today's foremost manufacturers of ladle brick—chooses corrosion-resistant Kaiser Aluminum roofing and siding for their new 64,000 square foot brick plant

The Pittsburgh area's corrosive climate can be murder on many building materials — and the Freeport Brick Company knew it.

So, before starting work on their new brick plant in Freeport, Pennsylvania, company president Francis H. Laube made an intensive study of all available materials — including aluminum and specially treated steel.

His purpose: to determine just which would best combine the benefit of minimum long range maintenance with low *initial* cost.

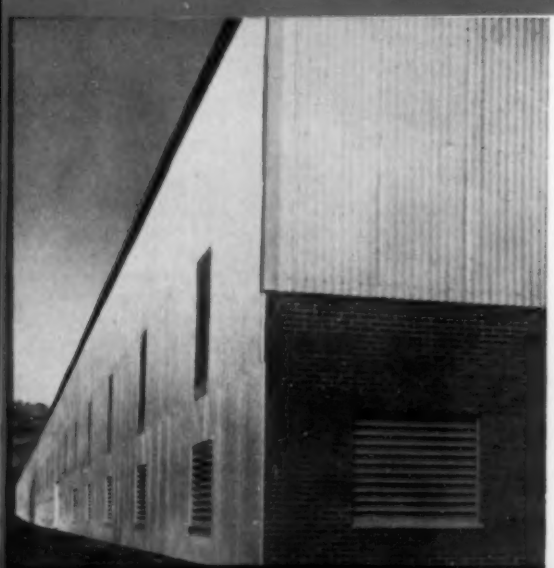
Result? Freeport specified corrosion-resistant sheets of Kaiser Aluminum—and is now looking forward to many years of economical service.

And Freeport got a bonus. Kaiser Aluminum's light weight — plus special design features — made big *installation* savings possible, too!

For example, sub-contractor David Starr of Callery Industries, Inc., a Kaiser Aluminum franchised applicator-erector, has this to say about their roofing work:

"We were very pleased with the way lightweight Kaiser Aluminum 48" corrugated sheets handled. Because of their extra width, fewer sheets were needed and there was considerably less waste from lapping. In fact, the entire 64,000 square feet were covered in only 15 days.

"For our money, nothing beats the benefits of Kaiser Aluminum industrial building products."



Attractive combinations of brick and functional Kaiser Aluminum box ribbed siding were employed for three walls of the plant. The fourth was hung exclusively in aluminum to allow for easy future expansion.

Kaiser Aluminum produces a full line of building products ideally suited for the brick and clay industry.

Weighing two-thirds less than similar steel materials, they speed construction and reduce the need for heavy, expensive supporting structurals. Their unique combination of strength and corrosion resistance promises a lifetime of handsome service with little necessity for painting or other care. And their distinctive embossing adds to the appearance of the building plus giving greater glare diffusion.

For A.I.A. File and full information, contact the Kaiser Aluminum sales office listed in your telephone directory. Or write Kaiser Aluminum & Chemical Sales, Inc., *General Sales Office,* Palmolive Bldg., Chicago 11, Ill.; *Executive Office,* Kaiser Bldg., Oakland 12, Calif.

KAISER ALUMINUM

THE BRIGHT STAR OF METALS

See "MAVERICK" Sunday evenings, ABC-TV Network. Consult your local TV listing.

Kilns Everywhere Now Standardizing on New S-D "Floater" Wheel!

- RUNS FREE AND EASY
- NEW IMPROVED LUBRICANT
- STOPS HIGH COST MAINTEANCE
- BEARINGS REMAIN IN PERMANENT ADJUSTMENT

Scores of brick plants all over the nation recognize the smooth running, low maintenance values of S-D "Floater" Kiln Car Wheels. Technically, the wheel is designed specifically for kilns, having such features as a completely closed outer hub with an inner hub protected by two special grease seals. These features effectively eliminate dust while retaining the high temperature lubricant for long periods of several months. Send us photostatic copy or blueprint of your present cars. With this information, we can quote you on replacement wheels. Savings are great with these free and easy running S-D "Floaters"! *Sanford-Day Iron Works, Inc., P. O. Box 1511, Knoxville, Tenn.*

SANFORD-DAY

KNOXVILLE TENNESSEE

Engineers and Manufacturers of PRECISION WHEELS for brick and clay, ceramic, mining and steel industries!

cut dryer loss with Additive-A

from Kimberly-Clark

When Additive-A is introduced at the pug mill, dryer loss is reduced because: 1. Clay lubricity is increased, reducing fault-causing stresses and strains and allowing you to extrude a stiffer column. 2. Tempering water is reduced up to 50%—less vapor pressure is generated. 3. Complete drying time is shortened yet reduced breakage and scumming losses are realized.

Here's what else Additive-A will do for you:

- Increase green plastic strength.
- Reduce laminations.
- Improve workability of the clay.
- Increase dry green strength.
- Permit more even temper.
- Extend life of augers, knives, dies and liners.
- Upgrade quality of all ware.

Write for descriptive folder, to: **Kimberly-Clark Corporation** • **NEENAH, WISCONSIN**
CHEMICAL PRODUCTS

In *September*

The Only Exclusive Heavy Clay Products Journal . . . Features

Auto CLAYmation

For an Industry that is "BUILDING BEFORE THE BOOM" —preparing for the 60's.

- Heavy clay products plants all over the world are gearing production facilities to cut costs, improve quality and add new products—preparing for the certain boom in the 60's. The September '58 Auto-CLAY-Mation issue of BRICK & CLAY RECORD will demonstrate the materials, equipment and machinery used by heavy clay products executives to plan for these plant improvements.

- Here's one of 12 dynamic issues of BRICK & CLAY RECORD that's "tailor made"—to create a selling climate for manufacturers of Materials, Equipment and Machinery. The experience of advertisers over the years has proven this important issue to have "triggered" the thinking of many a heavy clay products executive into "buying action."

Act now . . .

send your reservation today.

Brick & Clay Record

5 So. Wabash Avenue • Chicago 3, Illinois

***PHONE:* FRanklin 2-6880**

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SUPERLITE UNLOADERS

NOW SERVING

RICHTEX

RICHLAND SHALE PRODUCTS
COLUMBIA BRICK & TILE CO.
COLUMBIA, S. C.

BUILDERS EQUIPMENT COMPANY

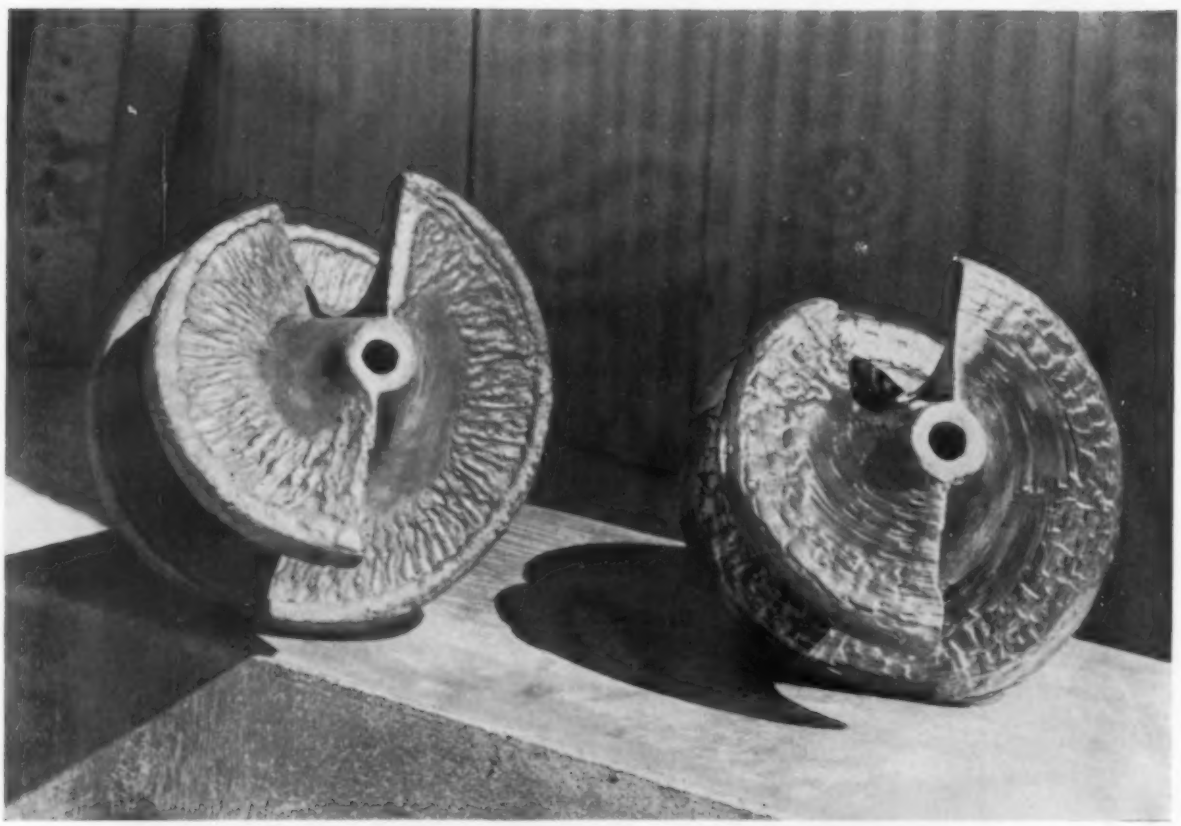
3810 NORTH CENTRAL AVENUE — PHOENIX, ARIZONA

WRITE—WIRE OR TELEPHONE FOR COMPLETE INFORMATION

COLLECT CALLS ACCEPTED—CRestwood 4-8321

Superlite Unloaders **DON'T COST — THEY SAVE!**

Point Auger life increased from 1 week to 15 weeks *with Stoody Hard-Facing...*



ILLUSTRATED ABOVE:

Point Auger at right shows polishing effect of Stoody 21 after considerable service. Note: All cast iron parts require pre-heating to a dull red heat (800°F) before hard-facing. Slow cooling thereafter, preferably in a furnace, is recommended.

Point Augers in one plant were lasting 1 week, were then discarded because of wear. Hard-faced with Stoody 21, life was stepped up to 3 weeks. Each auger was thereafter rebuilt 4 to 5 times, giving an average total of 15 weeks' service! Moreover, because of retarded wear, high polish of the hard metal and ability of hard-faced augers to hold gauge, almost twice as much material was handled per hour! For even longer service life many brick plants add Stoody Borod to flight edges.

Here's another tip on maintaining augers and other types of equipment: withdraw parts from service while still salvageable and keep a spare parts inventory of hard-faced replacements. This gives weldors ample time to keep ahead of hard-facing requirements and minimizes costly downtime.

Hard-Facing Guidebook—Latest hard-facing techniques on all types of wearing equipment are described and illustrated in the Guidebook. Ask your Stoody Dealer for a copy (check the "Yellow Pages" of your phone book) or write to the company.

STOODY COMPANY

11950 East Slauson Avenue · Whittier, California

New Series of Dry Pans and Rim Discharge Grinders

LET US SHOW YOU HOW THIS POWERFUL GRINDER CAN PAY FOR ITSELF IN 3 YEARS!

FEATURES OF SPECIAL INTEREST

1. Knee-action mullers.

This engineering feature has been amply proven in the automotive field in both automobiles and trucks. In a grinding pan, these knee-action units give space-saving linkage of the mullers to the pan frame, thus keeping the entire interior of the pan open for introduction of material to be ground. The knee-action linkage also keeps the mullers in absolute vertical alignment for best crushing effect on the material and also offers a convenient place to apply additional pneumatic loading or suspension action to the mullers. Loading or suspension of mullers may be had as original equipment or added later as conditions warrant.

2. Underdriven arrangement.

Anyone who has changed mullers in a pan will appreciate the uncluttered open top design of these machines. A simple overhead chain block crane on rails, which we furnish as optional equipment, can be utilized to serve any part of a single pan or a battery of pans with no interference from crossbeams or super-structures. The open design also permits easy use of a lift truck for changing parts. The pinion gear runs in an oil bath, and drippings from the crown gear are caught and returned to the oil pan. The drive space under the pan is sealed and ventilated to give freedom from dust contamination for long bearing and gear life. All bearings are friction-less type with renewable cartridge units. The step bearing is a SKF-Type self-aligning bearing which requires practically no maintenance except lubrication. This pan is idealy suited for complete dust-tight enclosure around the mullers and pan frames.

3. Optional Features

Many optional features are available such as automatic pan feeding and self lubrication.

4. Additional screening area.

The pan rim is slotted and acts as additional screening area. Alloy abrasion resisting steel is used in this pan rim for long life. Since the material being ground is thrown against the pan rim by centrifugal force and then scraped away by the scrapers in the pan, one can easily see that the slotted pan rim does quite a lot of screening, thus helping to keep the pan from becoming choked. Net production from "Super '60'" B-3 dry pans and rim discharge grinders varies from 40 to 75 tons per hour depending on the material being ground.

5. Pan is reversible.

This feature is often overlooked but can mean many extra hours of service from almost all the parts in the pan.

Toronto Foundry & Machine Co.

ENGINEERS ★ FOUNDERS ★ MACHINISTS

TORONTO, OHIO

NOW YOU CAN UNLOAD BRICKS, BLOCKS AND PALLETS MECHANICALLY!

SIDE-O-MATIC®

PRESENTS ANOTHER UNLOADING "FIRST"

SIDE-O-MATIC'S newly designed finger-tip adjustable fork can be quickly and easily set to handle all sizes of brick cubes, block cubes and pallets.

SIDE-O-MATIC . . . the original and patented boom-type unloader . . . readily unloads from the back of your truck and both sides without moving the truck. The cubes or pallets can be placed where you want them. Leaders in the block and masonry industry endorse the flexibility and greater savings of SIDE-O-MATIC. A note on your letterhead brings complete, illustrated literature showing how SIDE-O-MATIC'S can be adapted to your trucks. Write TODAY!

MONEY-BACK GUARANTEE
Try a Side-O-Matic Unloader on your truck for 30 days. If not satisfied, your money will be refunded.

PATENT PROTECTED
Covered by U.S. Patents 2,772,794 and RE-24334. Infringements are being prosecuted.

SIDE-O-MATIC
UNLOADER CORP.
P. O. BOX 1561, YORK, PENNSYLVANIA • TELEPHONE YORK 7357

Brick & Clay Record

July, 1958 Vol. 133, No. 1

5 SOUTH WABASH AVE.
CHICAGO 3, ILL.
FRanklin 2-6880

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now in 68th year.

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*Ceramic Engineering Staff.

CONTRACTS. Formal acceptance made only at Chicago. DEADLINES. Advertising material requiring proofs must be received in Chicago by the 24th of the preceding month; Final Space Reservations by the 28th of preceding month, complete plates received by 30th of month previous.

SUBSCRIPTIONS: U.S.A. and Canada, $5.00 for One year; $10.00 for Three Years. Single Copies (Current Issue), 75 cents. Single Copy Rates for Back Issues, $1.00. Foreign Rates, $7.00 per year; three years, $15.00.

Published monthly and copyrighted 1958 by INDUSTRIAL PUBLICATIONS, INC., 5 S. Wabash Ave., Chicago 3, Ill., U.S.A. Maurice P. Driscoll, President; F. L. Steinhoff, Exec. Vice President & Treasurer; F. J. Amstadter, Secretary.

BRICK AND CLAY RECORD is indexed by Engineering Index, Inc.

HAROLD H. ROSENBERG, Founder
1882-1958

Plant Should Control Dealer

A buyer's market, such as exists in nearly all lines of business today, always spotlights weaknesses among manufacturers as well as dealers.

Right now some of the price cutting going on in clay products can be ascribed to weaknesses among certain dealers. These dealers, who are the front lines of many manufacturers, do their fellow dealers as well as manufacturers a great deal of harm by their lack of salesmanship.

Part of the trouble with dealers is with the manufacturers that they represent, who do not discourage the cutting of prices by their dealers. In fact, some of them welcome it in order to move their products, and then hide behind the fact that it is the dealers over whom they claim they have no control and not they who are cutting prices. Nonsense!

Any manufacturer who thinks he cannot exercise some control over dealers just lacks imagination. If the manufacturers' line is worth having, he can exercise lots of control. A buyer's market does not last forever—so what happens to the weak-kneed dealer when he cannot get clay products in a sales market?

Most clay products dealers wish that the manufacturer would exercise more control over his price cutting dealer. They know that eventually price-cutting spreads and the strong dealer gets hurt, too. It is time that manufacturers realized and assumed the responsibility that is theirs, i.e., to police their dealers. You can if you want to.

The Editors

NEWS OF THE INDUSTRY

Walsh Plans $1 Million St. Louis Plant

Walsh Refractories Corp. has purchased additional land next to its St. Louis plant and plans to start immediate construction of a new plant to cost in excess of $1 million, according to Pres. A. J. Tomasek.

The new plant will make fusion cast refractories for glass plants. Tte present St. Louis plant employs about 135 and will hire another 30 when the plant is finished in the first quarter, 1959.

Perrysburg Reorganizes For $500,000 Expansion

Plans for reorganization of the Perrysburg (Ohio) Tile & Brick Co., for the announced purpose of increasing plant capacity and modernizing equipment at a total cost of some $500,000 were recently announced.

New orders for 1.1 million tile units, plus a 700,000 unit backlog and new products planned were causes behind the plans for expansion. New facilities will include a tunnel kiln, new dryers and new buildings, including laboratory and office buildings. The plans were announced by Harry Wilson, president.

New Tunnel Increases Malakoff Capacity 35%

Installation of a new tunnel kiln has increased capacity by 30,000 brick per day, some 35% of total production, at Texas Clay Products Co., Malakoff, Tex., according to Herbert Gatlin, president and general manager.

The new unit was installed in a 300 x 400′ addition. Also added to facilities were a 70 x 90′ green brick storage building and a 60 x 90′ building for fired brick storage.

Monthly output now runs at about 3 million brick, using another tunnel kiln and eight periodics in addition to the new tunnel.

Builders Brick Plans New Plant

R. C. Houlahan, president of Builders Brick Co., Seattle, has announced plans for construction of a new plant at an initial investment of $1.2 million, with capacity of 35,000 tons per year.

Production is planned for starting in summer of 1959, Houlahan said.

The site totals 50 acres, with 15 acres being developed now, 15 acres for future development, and 20 acres to "separate actual plant area from surrounding area."

The plant will include space of 105,000 sq. ft., in a steel and clay masonry building; 25,000 yds. of clay storage under roof, with another 50,000 yds. outside.

Equipment to be used includes Clearfield 10′ Maximuller, Leahy 4 x 8′ screen; two J. C. Steele even clay feeders; Steele 60F brick machine with Steele cutters; three track Swindell-Dressler and Robinson recirculating dryer 140′ long with 45 car capacity; Swindell-Dressler 379′ tunnel kiln with gas-oil dual burners.

Georgia Vit Triples Output

Georgia Vitrified Brick & Clay Co., of Augusta, has completed an expansion that triples its output of vitrified products, according to an announcement by the vice president-general manager, George Craig.

At a cost of about $500,000, new buildings and machinery have been installed. Terra cotta pipe of all sizes is made for distribution to North Carolina, South Carolina, Florida and Georgia.

Included in the new equipment is a grinder with 50 tph capacity; Steele 50 pug sealer. There are five dryer rooms in use now with 16 kilns.

The new plant section consumes 200 tons of clay on a two-shift basis daily. J. Clark Jack is company president; Mrs. Louise Wessel is secretary-treasurer.

Logan Clay Merges With Graff-Kittanning

Plans were announced in mid-June for the merger of Graff-Kittanning Clay Products Co., Worthington, Pa., with Logan Clay Products Co., Logan, Ohio, according to an announcement by Logan president Barton A. Holl.

The transaction involves all G-K facilities, with G-K to operate as a Logan division.

Holl said, "There will be no policy or executive changes resulting from the merger. This consolidation, following our $1 million plant expansion . . . strengthens our potential for greater progress in a highly competitive business and enables us to give our customers even better service."

Richard M. Graff, head of G-K since 1924, continued as the new division's general manager. F. G. Frantz will serve as sales manager.

Plant Operators Meeting At Clemson Oct. 27-30

G. C. Robinson, of the Clemson Ceramic Engineering Dept., has announced that the 1958 Plant Operators Forum will meet in Clemson, S. C., on Oct. 27-30. The program is under joint sponsorship by Brick & Tile Service, Southern Brick & Tile Mfrs. Assoc., North Carolina State College, and Clemson College.

Chase Appointed CPI Manager-Secretary

Following their annual meeting in San Francisco, officers of the Clay Pipe Institute announced the appointment of David G. Chase as manager-secretary of the Institute.

Coal Company Building New Lightweight Plant

Construction is expected to be underway by this time on a new lightweight clay aggregate plant, being built for the Clinchfield (Va.) Coal Co. The $1.5 million plant reportedly will employ about 25 people when production begins sometime in December. The plant is a part of an overall $20 million expansion by Clinchfield.

The aggregate, made from shale, will be made in two large rotary kilns, company officials said.

Roanoke-Webster Buys Stock of Two Concrete Firms

Roanoke-Webster Brick Co. has purchased all stock of Pre-Shrunk, Inc., and Roanoke Cinder Block Co. from S. D. Ferguson and M. W. Ferguson of Roanoke, Va.

Pre-Shrunk will continue to manufacture block at the present plant and plans to establish a retail and wholesale outlet for brick made by Roanoke-Webster plants. Warren W. Hobbie, R-W president, has been named president of the concrete firms.

25¢ GladMcB Dividend

The directors of Gladding, McBean & Co., Los Angeles, have declared a 25¢ quarterly dividend, payable July 24 to stockholders of record July 8, according to an announcement by R. A. Eccles, secretary.

Goshen Being Rebuilt Following Fire

Goshen Brick & Clay Corp., Newcomerston, Ohio, is being rebuilt after being heavily damaged by fire in early May. Contracts for a new steel and aluminum building to replace the old one have already been let, with construction hoped to be completed in five weeks.

Repair of crushing and grinding equipment has begun. The company figures to be back in full operation about August 1.

25¢ Basic Dividend

H. P. Eells, president, has announced that the Basic Inc. board of directors has voted quarterly dividends as follows: 25¢ per share on common payable June 30 to holders of record June 16; and $1.4375 per share on preferred payable July 1 to holders of record June 30.

Kaiser Names Three Research Specialists

Appointment of Dr. Leonard Reed, M. L. Van Dreser and J. R. Bachman as specialists in basic refractories research and development activities at the Milpitas, Calif., laboratory has been announced by James Hicks, research director for the Kaiser Chemicals Div., Kaiser Aluminum & Chemical Corp.

Bachman, formerly in refractories research with Battelle Memorial Institute and U. S. Steel, becomes head of a group of researchers concerned with the utilization and development of improved basic refractory products, the announcement said.

Van Dreser will head up work for the glass industry products; Dr. Reed will direct fundamental research.

Antonsen to Contract Re-nu-veneer in Minneapolis

Martin Antonsen & Sons has been licensed as exclusive dealer-applicator of SCR Re-nu-veneer in Minneapolis by SCPRF. Re-nu-veneer was on public display in Minneapolis for the first time at the Northwest Builders Show, held in mid-March.

Am-Marietta Sales Record

Sales of American-Marietta Co., for the six months ended May 31, reached a record $105 million, while sales for the period at the same time in 1957 were $96 million.

Net income for the 1958 half was $5.7 million. Second quarter earnings of $3.5 million were up 67% over first quarter earnings of $2.1 million.

First Pipe Shipment From New Logan Plant

The first shipment of pipe from the new million dollar plant of Logan Clay Products Co., Logan, Ohio, has been delivered to a dealer in Ellettsville, Ind., according to an announcement by Logan. In the photo are Charles Miller, at left, Logan sales representative, and Don Mayo, manager of the Ellettsville Lumber Co. Pipe shipped was 4", in 4' lengths. The plant also makes pipe in 6" and 8" diameters, in 4 and 5' lengths. Annual capacity of the plant is 30,000 tons.

NEWS OF THE INDUSTRY

Amvit 30¢ Dividend

American Vitrified Products Co., Cleveland, has declared a regular quarterly dividend of 30¢ per share payable to stockholders of record June 16.

Pres. E. L. Miller announced that net earnings for the first six months of this year were $162,826 as compared to $224,649 for the first six months of 1957.

Powell Named SM For Buffalo Brick

Roy A. Powell has been appointed sales manager of the Buffalo (N. Y.) Brick Corp., according to an announcement by Pres. Stephen B. Elggren.

Elggren also noted that manufacturing capacity of the plant in West Falls, N. Y., has recently been expanded 25% to a rate of 50,000 brick per day. Also the company's recently opened general sales office in Buffalo is being enlarged, Elggren said.

Kight, Brick Executive, Joins R. G. Varner

K. K. Kight, organizer and former general manager of Holly Springs Brick & Tile and Southern Brick & Tile, both of Mississippi, has joined R. G. Varner Steel Products Inc. as vice president in charge of sales.

Kight's son, Rodney, has been named general manager of the Southern B&T operation at Byhalia, Miss.

Kight served five terms as mayor of Malvern, Ark. The Varner firm is active in supplying buildings to the brick business.

Doctor of Engineering Degree for J. B. Arthur

At the 85th annual commencement of the Univ. of Missouri School of Mines and Metallurgy on June 1, the degree of Doctor of Engineering, Honoris Causa, was conferred upon J. B. Arthur, founder and board chairman of Mexico Refractories Co.

Dr. Elmer Ellis, school president, awarded the degree to Arthur.

Dr. C. L. Wilson, Dean of the School, cited Arthur's more than 40 years of achievements in engineering and management in the refractories industry, and also his contributions to aid for deserving students.

In the photo above, Arthur is in the middle with Dean Wilson at the left, President Ellis at right.

Charles A. Smith, executive vice president of Mexico Refractories, was the guest speaker at the commencement, with his talk titled "The Future and Your Heritage."

Oberly Brick Dissolved

Oberly Brick Co., Wilmington, Del., is going out of business after 69 years, according to H. H. Oberly, president. The plant site has been optioned to a construction company which tentatively plans construction of a shopping center.

H. H. Oberly said a combination of price competition from more mechanized firms and exhaustion of the company clay supply were the underlying reasons for the dissolution. Since January, when production ended, the firm has been selling from stock. The company was founded in 1889.

Washington Brick Sponsors Estimating Course

Shown from left are Ronald Prehm, director sales and promotion for Arketex; John Harding, vice president of Washington Brick; Russell Hammond of Hammond Estimating Service; John Morris, Washington Brick sales manager.

Thirty Washington (D.C.) area construction men recently (May 21) completed a short course in the study of structural facing tile presented at Washington's National Housing Center by the city's Washington Brick Company and the Arketex Ceramic Tile Corporation of Brazil, Indiana.

Covered in the course were nomenclature, shapes, short cut and unit methods of estimating and shop drawing and job laying-out involving the use of the tile.

The classes were held to give the area's masonry contractors a better knowledge of the tile which is coming into use more and more as facing material in schools and other public buildings.

Conducting the course was Russell Hammond, of Canton, Ohio, who conducts similar courses for the Structural Clay Products Institute.

Many of Washington's leading masonry contractors were represented in the classes.

Wilson Named Porter Shamva Mullite Distrib.

J. D. Wilson Co., Inc., has been appointed distributor for Shamva Mullite Refractories in Wisconsin, according to an announcement by A. R. Eakins, general sales manager of Refractories Div., H. K. Porter Co., Inc.

Wilson has been a distributor of Laclede-Christy refractories for 16 years in Wisconsin, Upper Michigan and Northern Illinois. Shamva Mullite will be warehoused in Milwaukee.

Decker Succeeds Thompson As Corhart Chairman

Frederick S. Thompson, a Corhart employee since the company's founding 30 years ago, has retired as chairman of the board of the Louisville, Ky., Corhart Refractories Co.

Elected to succeed Thompson was William C. Decker, president of Corhart's parent firm, Corning Glass Works.

Charles Yale has been appointed assistant secretary-treasurer succeeding W. C. Freeman, who has retired.

William Davis of Stark Dies at 64

William H. Davis, for 18 years secretary of Stark Ceramics Inc., and later associated with Richland Shale Brick Co., died June 2 at the age of 64.

At the time of his death, he was sales engineer for Martin Steel Products Co. He also was president of Stark Engineering Co., a SCPI and Facing Tile Institute director.

John Harris Dies

John R. Harris, 92, former owner of Ada (Okla.) Brick Co., died June 1. He retired from Ada three years ago, at that time selling the company to Superior Clay Co. He at one time had an interest in American Brick & Tile Co. of Oklahoma City.

Lee of Basic, Inc., Wins Lamme Medal

The Benjamin G. Lamme Medal of Ohio State University has been awarded to Harley C. Lee, vice president and director of Basic, Inc., Cleveland. The gold medal is awarded each year to an OSU alumnus in recognition of "meritorious achievement in engineering or the technical arts."

Lee at one time was research director for Basic.

Frank Robison Dies

Frank E. Robison, 73, president of Hill Brick Co., East St. Louis, Ill., died June 20 after a heart attack. He had been with Hill since 1933 when he joined them as manager. He became president in 1948.

Thomas Moulding Dies

Thomas C. Moulding, 89, retired president of the Thomas Moulding Brick Co. and Thomas Moulding Floor Co., died June 6 in Evanston, Ill. He retired from the two companies in 1938.

William Drysdale Dies

William M. Drysdale, 66, of Moland-Drysdale Brick of Hendersonville, N. C., died May 11 at his home, after a period of poor health.

which glaze is best for you?

Attention, clay pipe manufacturers! Ferro has a *free service* especially for you. It will help answer the question above—quickly, intelligently—and safeguard your future sales and profits.

For nothing more than the asking, Ferro techniciana will find the best frit glaze for your clay bodies, develop the desired uniform color, work out the lowest-cost slip formulations, tell you what you need to adapt your present equipment for frit glazing, and give you a good line on relative costs. With this information you can then accurately evaluate the new process for *your* products, *your* market — and *know* that your decision, whatever it is, is based on the most authentic data available.

Why guess when you can have all the facts? Contact your Ferro representative — or write, wire, phone . . .

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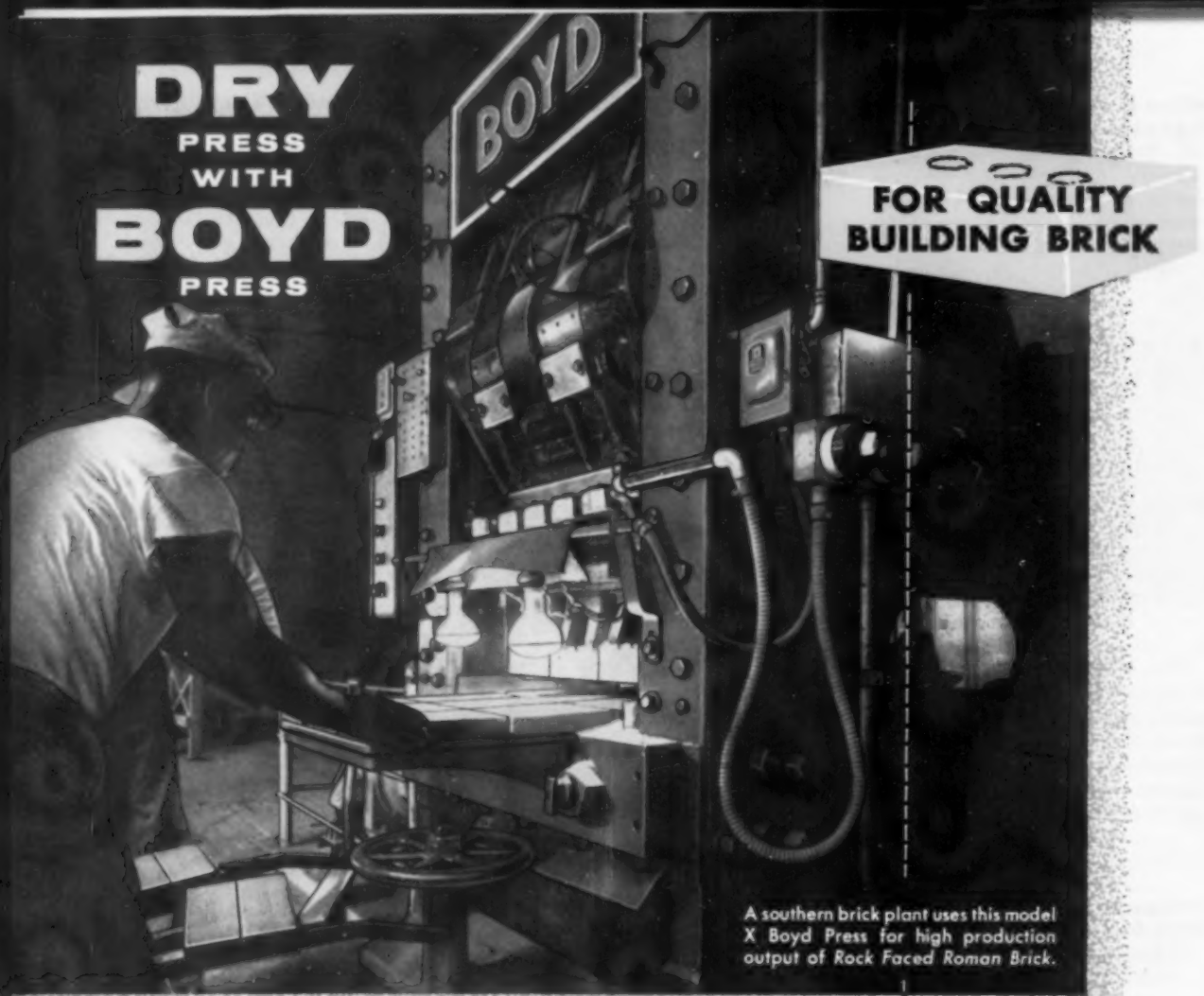

Why the *dry press era* is here...now

More profit volume is the reason why so many operators are including dry press building brick in their plans for expansion.

With a Boyd *Power* Press you can't help but turn out a brick with smooth, straight edges because it is pressed out with a *die.* Less moisture is required, so that drying time is less and shrinkage and drying problems are alleviated. Dimensional stability is more easily attained *and* controlled.

On the operating side... Boyd Press has proven its durability and low maintenance on severe service in brick yards for almost 70 years. Few operator skills are required; power and labor requirements are considerably less than with conventional brick machinery.

On the profit side... Boyd Press can bring extreme flexibility to your product line. It will turn out a dense, stable, *top quality* product at high production rates...one that will command top dollar over a wide market area.

Why not see how a *step up* to Boyd can put *power* to work in your profit picture? Write for details.

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INCREASE YOUR PROFIT POWER 5 WAYS

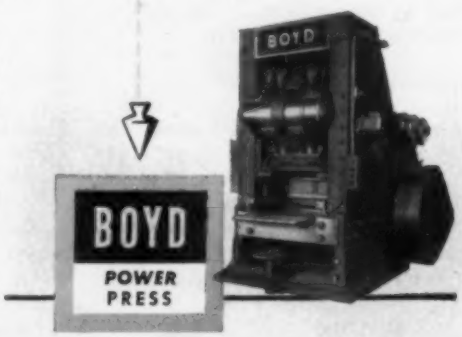
SELL! Maximum dimensional stability

SELL! Smooth surfaces, square edges

SELL! Fast delivery

GET... Fast drying from low moisture and less shrinkage, too

GET... Optimum flexibility for producing top quality brick with low power, maintenance and labor requirements



To judge by the recent survey of business failures by Dun & Bradstreet, the clay products industry is a stable one. The category of Stone, Clay & Glass tied for 12th place (with Chemicals and Drugs) in a list of 14. Failure rate was 48 per 10,000 operating concerns. The only one lower was Printing and Publishing with 35. Tops on the D&B list were Furniture, 247; Transportation Equipment, 146; and Leather and Shoes, 145. So, you can see that the failure rate for clay's category is low compared to the others.

The rate is also low, compared to some recent years. In 1954, the S, C & G category rate was 60; in 1957, the rate was 56. Highest rated year in those given by D&B was 1950, with a 66 rating. Despite the talk about lower business, D&B noted that the failure rise has slackened.

The Clay Products Builder, put out by SCPI's Region 6, has a long report in their May issue about a builder named Walrod who's building SCR brick houses at a cost of only $190 more than frame. Evidently the key to this operation is the use of SCR brick plus the SCR Masonry Process. They use polystyrene for insulation, with service also as furring and lathing. Sounds like there's some good promotion work from Jim Neville and his men involved, also.

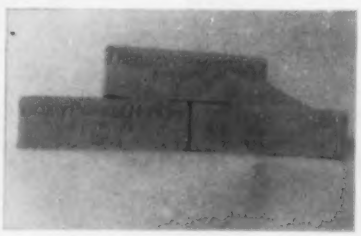
The clay products industry will get some help from savings and loan associations in getting housing starts boosted. W. Franklin Morrison, president of the National League of Insured Savings Associations, has said that "The number one job facing savings and loan associations this year is to get American families back into the home buying habit." Some 400 S&L executives from all over the country attended the meeting in Chicago in mid-May when Morrison made this statement. Morrison said that the group would study ways to spur interest in home buying and would make available its resources to foster expanding housing output.

Just in case there are any radio hams in brick plants, looking for a conversation partner, Russell E. Arnold, production superintendent for Robinson Clay Product in Akron, is operating K8DNR. His set-up is shown in the picture with this column.

Brick plant operator Clarence Austin, of Binghamton, N. Y., has reported an unusual order — for cull glazed brick. The building contractor involved, who's building the $75 million Washington Square village in NYC, wanted imperfect brick with ragged edges, spots under the glazing and chipped corners. The contractor is said to have wanted them because the brick "provides softness along with color to contrast with perfect off-white brick." Three colors are used, evidently mixed, with these being blue, yellow and off-red, to be used in three buildings. Austin reportedly had quite a shock when the building contractor showed no interest in the plant's usual run of top-quality brick, and asked for the rejects.

Joe Brown, of Baltimore Brick Co., has sent us two interesting tems from Baltimore papers. Both items appeared in the Baltimore Sun. One involves the brick sidewalks used around the State House at Annapolis, with the local people wanting to keep the brick as a matter of historic pride and continuity. Brown says, 'Naturally, Homewood Colonial Pavers were used for the walk and also Homewood Colonial for the wall around the Senate Circle. The Hon. Theodore R. McKeldin, governor of our state, took an intense interest in the work while it was being done."

Brown continues: "Because of the prominence of the spot, we made a brick with the name of the architect, Henry Powell Hopkins, and the date for inclusion in the wall. . . . When the Governor saw these bricks, he asked that some be made for him also. So, attached is a photograph of the three bricks, on which is inscribed the name of the Governor, the architect, and the brick which are to be incorporated in the wall."



The other Sun story about Baltimore Brick tells something of the company operation, including the hand-work for special jobs such as the State Office Building which used a brick that was intended to look like many of the historic brick buildings in that area.

Taking up human longevity for a moment, Robinson Clay Product Co. at its Midvale, Ohio plant has an employee, Frank Baumholtz, who was recently honored for 45 years' service. Paul Welsch, of Parral, Ohio, similarly was saluted for 40 years. Other long-timers at Robinson include Orie M. Hunter, 35 years; William Keffer, Steven Russell, James Gamble, 30 years each; Ralph Yackey, 30 years.

Robinson is doing well in safety too; a 53% improvement in plant safety, over the first two months of 1957, has been achieved by Robin-

(Continued on page 64)

For Canada's Largest Brick Manufacturers

LAPRAIRIE BRICK & TILE, INC.

MONTREAL, QUEBEC

This DRESSLER TUNNEL KILN solves a difficult firing problem

LAPRAIRIE is processing most successfully a body high in fluxes and pyrites with the giant Dressler Kiln shown above. Advanced Dressler engineering and kiln construction provide controlled temperature and atmospheric conditions for production of 75,000 brick per 24 hours, firing with Bunker C oil at high efficiency. The kiln is 450 ft long, and car settings are 10 brick wide by 12 brick long by 14 courses high, holding 4120 brick per car.

- We will be glad to discuss the details of this notable operation with you.

Swindell-Dressler Corporation provides a complete engineering service for the ceramic industry in the design and construction of new plants, and modernization of existing facilities. Consultations arranged gladly on request.

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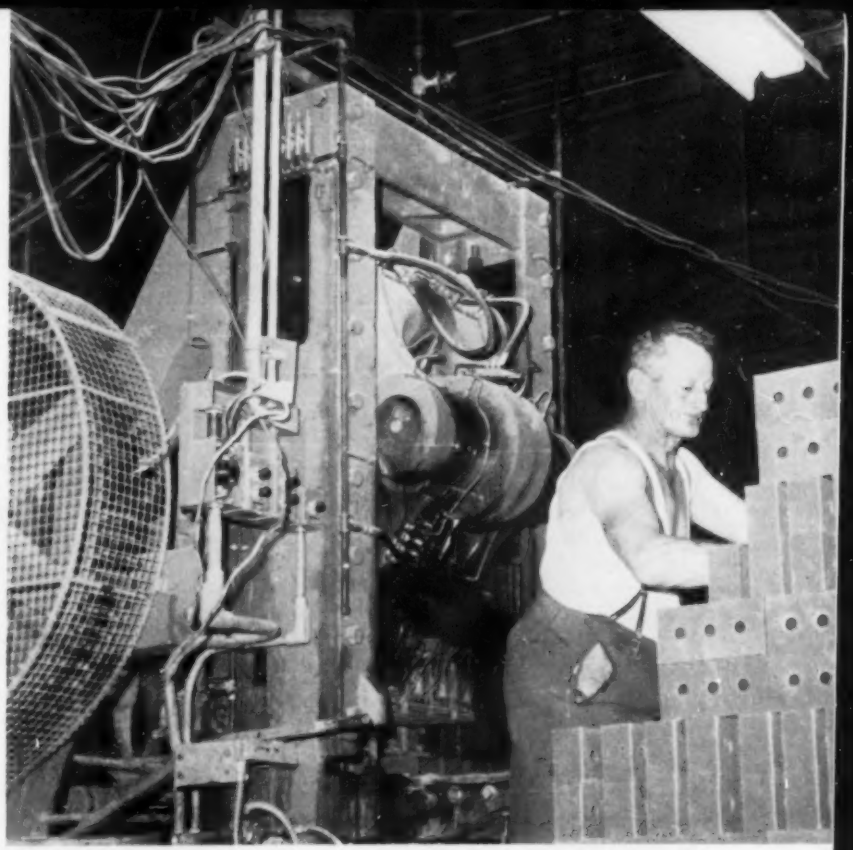


Plant uses 450′ tunnel kiln with brick made by dry press method; has built-in capacity for another tunnel.

Laprairie:

New Plant Operates Over Capacity

For the late Randal K. Robertson, Vice President and General Manager of the Laprairie Brick & Tile Inc., Montreal and the Cooksville Company Limited, Toronto, May 28, 1957 was the culmination of ten years' work. This was the day that a completely integrated tunnel kiln plant, known as Plant No. 5, produced its first brick. For ten years tests were carried out on the raw material. Green brick were fired in a score of tunnel kilns throughout Canada and the United States; plans were made, revised, scrapped and re-started. The reasons for all this were quite simple. The raw material that this Company had to work with had a very short firing range and a difficult oxidizing problem.

In order to ascertain the firing characteristics of the material, tests were made in laboratories at Alfred University in New York State, Ottawa in Canada and at the University of Texas. When all the data from these various sources were found to be in agreement, the next logical step was to design a kiln to fire 70,000 brick per day. The Swindell-Dressler Corp. in Pittsburgh was selected to do this.

(Continued on next page)

Below is control room at Laprairie; picture on top shows one of four presses used at plant.

LAPRAIRIE BRICK & TILE Continued

The balance of the project was carried out under the direction of R. Kenneth Robertson, now General Manager of Laprairie Brick & Tile, and Messrs. C. B. Witt, Superintendent of Plant 5 and G. W. Young, Ceramic Engineer.

The entire plant is completely enclosed in a structure 850 feet long by 180 feet wide. It consists of pre-cast concrete columns, pre-cast roof slabs and a pre-cast grade beam supporting hollow 6" load-bearing tile. The last 4 feet of the building is enclosed with Resolite, a polyethylene transluscent panel. 36 roof fans ventilate the entire building. Throughout the plant no expense was spared to incorporate the newest and most modern automatic equipment. The result is that today the plant is operating at 10% above its designed capacity (i.e. 77,000 brick per day) with a work force of 42 men which includes maintenance and supervision.

The raw material used by this plant in making brick is obtained from an 80 acre open pit, adjacent to the plant. The shale is first rooted, then allowed to weather for as long as possible, after which it is bulldozed into windrows and loaded either by ¾ yard Dominion Shovel or Michigan 1755A front-end loader.

Unloading Signal

Each of the two hoppers are equipped with two Bindicators — two series of signal lights, one outside, visible to the truck driver and one inside on the Master Control Board,

At left is G. W. Young, ceramic engineer and right is C. B. Witt, superintendent.

showing the relative levels of the two systems.

From these hoppers the shale is fed by Jeffrey vibrating feeders into Eagle crushers. This crusher reduces everything to -4". Conveyor belts transfer material to storage bins, which are also equipped with Bindicators; these control the feed to the hopper. From the hoppers the material is fed by Jeffrey vibrating feeders to the large Maximuller dry pans. Electrically heated Leahy screens separate the fines from the tailings. The latter are returned to the system for further grinding. The ground material is then transported by conveyor belts some 300 feet and distributed to four storage hoppers directly above each of the dry presses.

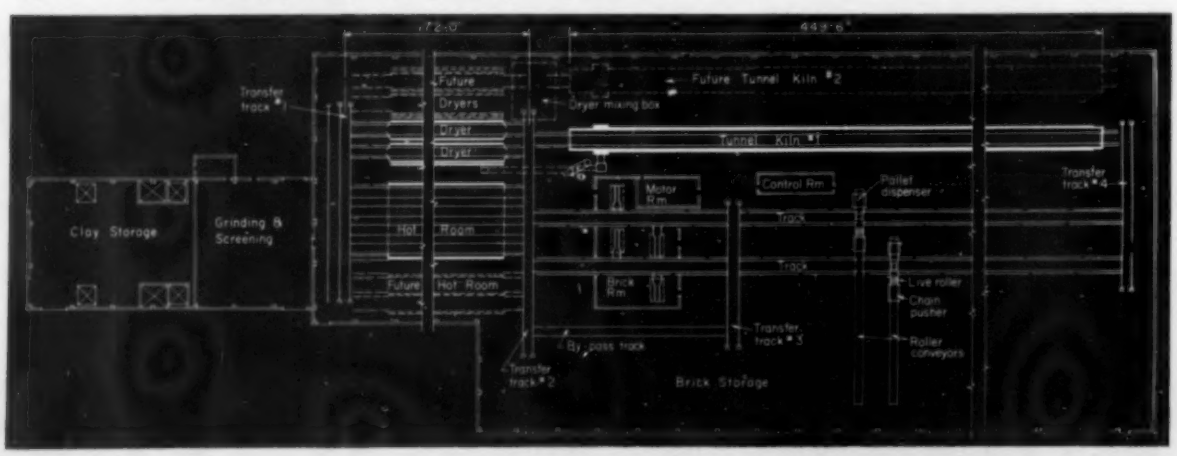
In addition to making brick using red burning shale, the company has pioneered for over 25 years in the use of admixes. These are added to the system completely automatically. The amount of shale fed to the system is weighted continuously by an ABC feeder belt scale and the rate of feed is set from the Master Control Board. A slurry of barium sulphide and the required admix is measured carefully into large slurry tanks and pumped by means of a Moyno constant displacement-type slurry pump to the dry pans. It is introduced directly as the material is being fed under the muller tire. Because the slurry is crushed with the shale it is completely distributed throughout the body of the brick resulting in the most uniform color dispersion this company has ever been able to obtain. It is this company's belief that this represents the first time a dry pan has been used as a continuous mixer as well as a crusher.

One Man Control

The entire operation is controlled by one man who is able to feed the necessary amount of additives for coloring purposes and the desired rate and moisture contents. At a glance he can see what presses are running and the level of the raw materials in both the four feed bins and the four bins directly above the presses.

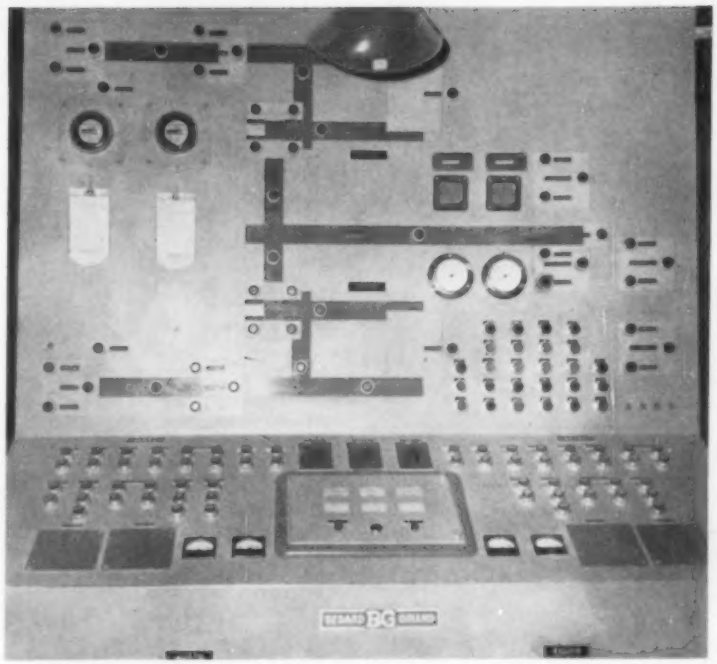
Four dry presses designed and built by the Laprairie Brick & Tile Inc. are used in this plant. After pressing, the brick are set directly on cars 8 feet wide by 9 feet long. From the presses

Layout here is of overall drying-firing-packaging area; grinding out of sight at left.



the cars are moved into a radiantly heated hot room. Due to the severity of the Canadian winter and the high cost of heating this 140,000 sq. foot building, brick must be protected throughout the cold weekends. A structure capable of holding 60 cars was built of hollow block and pre-cast cement beams. This is enclosed at both ends by canvas curtains. Beneath the floor is a sub-floor; in the intermediate air space, products of combustion from the kiln are passed and exhausted by means of a second fan.

The dryer is a two-track type with four re-circulating zones designed by Robinson Ventilating. The heat for the dryer is supplied from the cooling zone of the kiln and is automatically controlled to allow the addition of either cold or hot air from an auxiliary burner. The temperature and humidity are automatically controlled. The brick, because they are dry pressed, contain very little moisture and as a consequence, drying is not a problem.



Laprairie's control panel, divided into north and south manufacturing areas. Plant uses one-man control.

Under-Car Firing

After the raw material tests had been completed, Swindell - Dressler was selected to design a kiln. Several developments in the past few years had made such a kiln possible. The first was the principle of "under-car firing." By firing below the deck of a car, the width of the kiln was increased from the conventional 6 brick and 8 brick to 10 bricks wide. It is believed that this is the widest kiln firing brick. The principle of under-car firing also enabled the brick on the deck of the car to be fired as hard as the brick on the top. This minimized temperature differences and the standards demanded by the narrow burning range were able to be met.

The oxidizing problem was solved by the marketing of the excess-air type oil burner. The use of Bunker C oil in excess-air burners enabled the company to use a cheap fuel at temperatures much lower than was possible in the past. The temperature of the oil is automatically controlled at 230 degrees F. Atomizing air pressures up to 44 ounces are employed. By carefully controlling the atomizing air and the combustion air, and by maintaining a very high temperature of the oil, this fuel has been handled most satisfactorily and cheaply.

Hi-Temp Fans

The third factor which makes this kiln possible is the use of high temperature fans capable of handling gases to 1600 degrees Fahrenheit.

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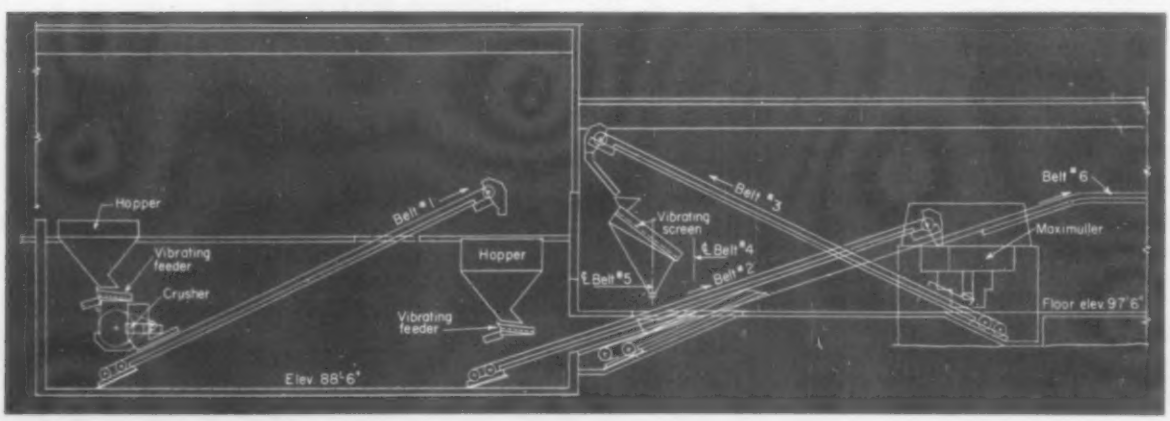
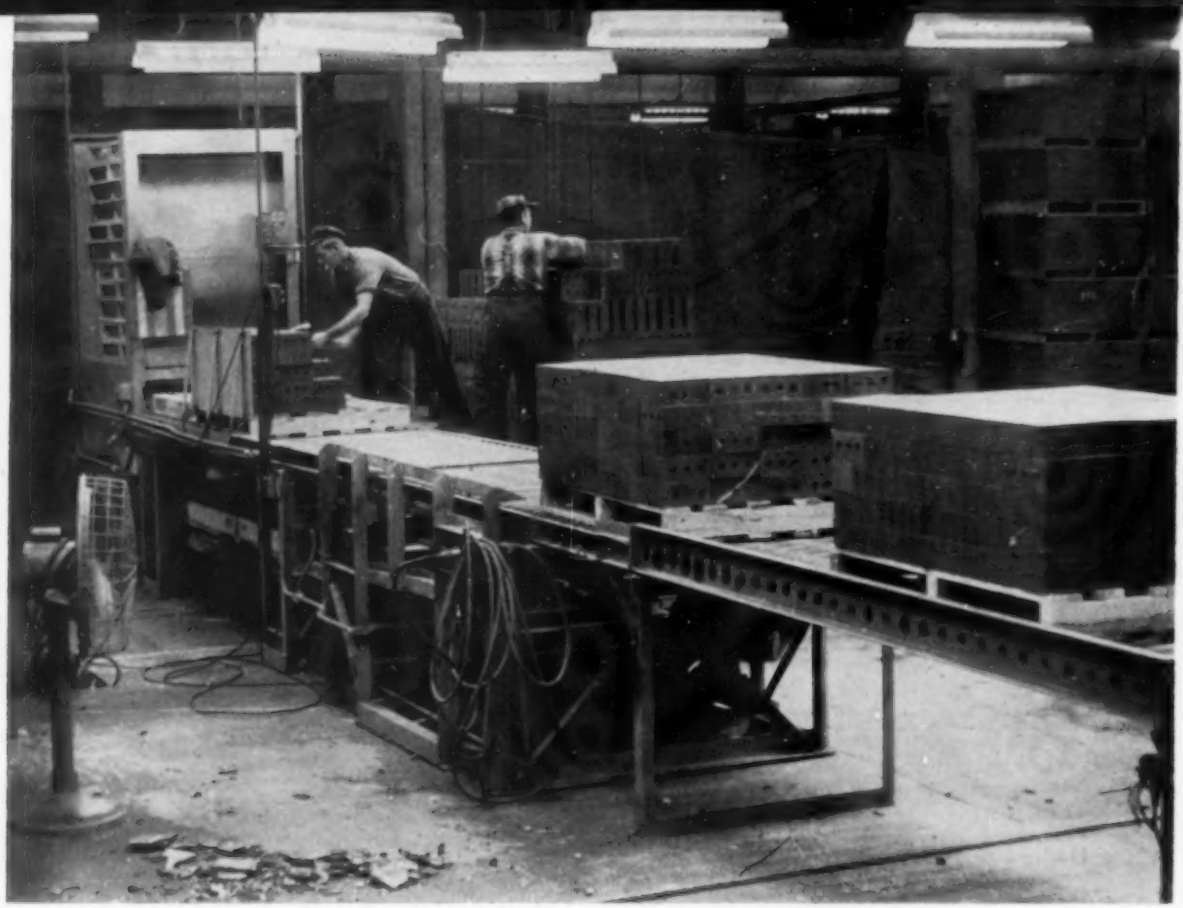
Grinding, screening and conveying are done in this layout at Laprairie.





Pallets are fed automatically on the unloading level.

These fans make it possible to oxidize and cool quickly. Large amounts of hot gases from the cooling zone are passed forward and are injected into the re-circulating system of the oxidization zone.

The furnace zone is maintained under both pressure and temperature control. Four automatically controlled groups of burners maintain the desired temperatures and automatic pressure control on the exhaust fans maintain a slightly positive pressure throughout the kiln. This contributes to a more even heat distribution in the furnace zone.

High temperature fans cool the brick rapidly after leaving the furnace zone. Some of this hot air is sent forward into the oxidization zone. As the brick approach the quartz inversion point, the rate of cooling is diminished. After passing through the point, a second system of fans cools the brick rapidly and sends the hot, clean air to the dryer. The kiln is 449'6" long and the twin dryer 136 ft. long. All the kiln cars are equipped with tapered roll bearings. A 6" hydraulic cylinder pushes 45 cars with only a pressure of 300 lbs. Fuel consumption for the 77,000 brick produced every 24 hours, is 44 U.S. gallons per 1,000 brick.

After firing, the kiln cars are pushed to an unloading area. Here workers standing on the cars select and sort the brick. Pallets are placed on a conveyor line system at a convenient working level. When the cube has been built the worker pushes a button and an empty pallet replaces the loaded one which moves down the conveyor belt on to a storage roller conveyor. This roller conveyor holds up to two hours' production at a time. Lift trucks then place the pallets either directly on the trucks or into storage.

At the present time plans are being made to incorporate an automatic strapping machine for the manufacture of 75-brick packages.

Partial List Of Equipment Suppliers To Laprairie Brick & Tile

Tunnel Kiln	**Swindell-Dressler**
Screens	**Leahy**
Crusher	**Eagle Iron Works**
Vibrating Feeders	**Jeffrey**
Electric Crane	**Alliance**
Dry Pan	**Clearfield**
Fans	**Robinson Ventilating**
Fan, Temperature Controls	**Minneapolis-Honeywell**
Lift Trucks	**Towmotor, Mercury**
Conveyors	**Matthews**

Right hand part of wall was treated over three years ago; untreated part began to pick up dirt and to discolor within six months of erection. Untreated part soon showed efflorescence.

Plant-Applied Silicones Can Increase Sales

Silaneal 772 can be applied by spray or dip methods to fired brick; can keep brick clean, efflorescence-free, improve suction rate; costs 50¢ per thousand.

By

B. C. Carlson

Production Engineering Laboratories
Dow Corning Corporation

Silicone masonry water repellents have established themselves through the past several years as effective treatments for completed above-grade masonry surfaces. They are easily applied by either spray or brush techniques. Their use insures a clean, dry masonry wall, free from efflorescence and other deterioration due to weathering.

Life expectancy of a solvent applied silicone resin water repellent is five years or more, depending upon the type of exposure.

Now Plant Applied

The proven success of solvent applied silicone resin masonry water repellent on finished surfaces led to a desire for a treatment of the brick at the plant site. If the unit could be treated at the plant site, there would be less possibility of efflorescence or dirt pick-up prior to laying up.

With this new concept in mind, Dow Corning Corp. developed Silaneal® 772, a water soluble organo-silicon product specifically designed for the treatment of brick at the plant site with no change in surface appearance or color of the brick.

The product is an alkaline salt of an organo-silanol compound. It has a pH of approximately 12 and is furnished as a 30% solids solution in water. It is easily thinned with additional water to any desired concentration. Since it contains no solvent other than water, it is completely safe to handle at brick plants where the flammability of most solvents would create a fire hazard.

Applied to Fired Product

The product is applied as a dilute solution to the units as they leave the kiln, prior to storage or delivery to the shipping dock. Application can be made by spraying the surfaces of the units or by immersion of the entire unit. The solution cures by air drying; treated brick develops water repellent characteristics almost at once. No special provisions are necessary for the storage of the treated units since the Silaneal 772, once cured, is completely insoluble.

The only precaution necessary is to avoid exposing the freshly treated uncured units to heavy rain. High humidity conditions have little effect on the treated unit. The cure may be retarded, but the ultimate results are not affected.

In effect, the treatment of the brick and subsequent drying out results in the formation of a thin invisible deposit of a silicone integrally bound to the pore surfaces

(Continued on next page)

SILANEAL Continued

of the brick. The depth of treatment depends upon the depth of penetration. The brick can be said to be "silicone-annealed" by this process, which is entirely different in method from previously used solvent applied silicone resins.

Benefits Similar

The benefits to be obtained through the use on brick units are similar to those obtained through the use of the silicone masonry water repellents applied to finished walls. The treatment will keep the brick unit dry without inhibiting the breathing characteristics. Efflorescence due to vanadium, sulphate or carbonate salts will be completely eliminated. Water-borne stains will be effectively repelled thus eliminating ground staining.

Discoloration from rain water carrying dirt particles or from water washing down over the edge of the roof is also eliminated. Water drawn into an untreated brick unit and subjected to repeated freezing and thawing may result in spalling or scaling of the unit. This problem is eliminated by the use of Silaneal 772 because water in liquid form cannot enter the treated surface.

Plant site treatment of brick units gives an advantage that cannot be obtained by treatment of the finished brick surface. Bond strength between the brick units and the mortar is improved. If the concentration applied to the unit is carefully selected, mortar bond strength may be as much as doubled. Table I shows the results of buff brick laid up in triplets with a one-to-three mortar, and air-dried for seven days prior to test.

TABLE I

Brick Treatment	Pounds per square inch to shear out center brick Average
None	30.4
1-12, 772 to water	120.5

The effectiveness of this 1 to 12 dilution ratio in reducing the capillarity of the unit was tested by immersion of one face of the unit into one-quarter inch of water for a period of 24 hours. Under this test the untreated unit absorbed 10.2% water based on its own dry weight. Treated with the solution, the unit absorbed only 0.15% water.

Even more striking were the results of a similar test run on a shale brick (Table II) capable of absorbing 18% water under the immersion test described.

In the above table, the units laid up immediately after the three minute soak in water had attained 90% of their saturated weight. This results in the highest obtainable

TABLE II

Brick Treatment	Condition of brick when laid up	Pounds per sq. in. to shear out center brick Average
None	Dry	0.0
None	3 minute soak	11.4
1-13, 772 to water	Dry	24.9

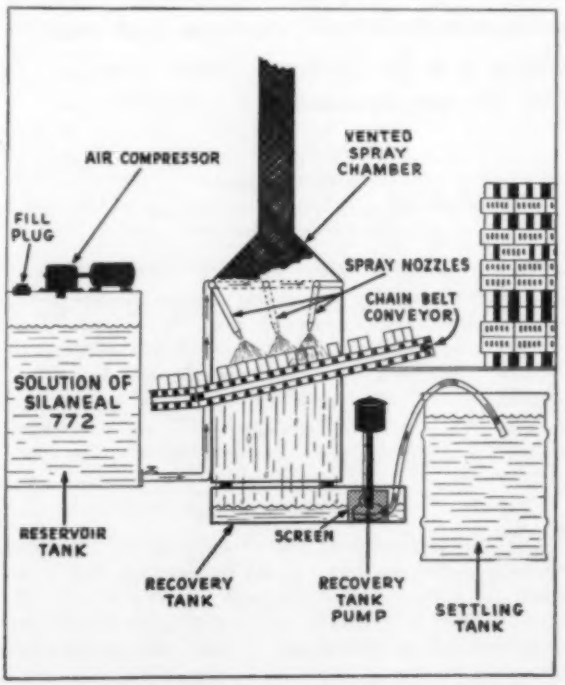
bond strength possible by conventional techniques. With the use of Silaneal 772, a much higher bond strength is possible without the extra and oft-times uncontrolled step of wetting the brick down prior to laying.

Two quite different application techniques are available. Silaneal 772 may be applied by spraying the units as they move on a conveyer belt under spray nozzles. Or complete stacks of bricks may be dipped into the treating solution. The choice of method is dependent primarily upon the operational characteristics of the plant involved.

Spray Application

The spray technique generally finds use in a plant where tunnel kilns are employed. Since the units on the tunnel kiln cart are usually removed by hand, this process location becomes an ideal spot to set up spray equipment.

The spray application technique is not necessarily limited to tunnel kiln operations. Plants employing bee hive or up-draft kilns may also use the spray technique. In this type of operation, the spray equipment should be portable so that it may be placed at the kiln door to



Typical spray set-up primarily designed for tunnel kiln operation handling. A portable sprayer is available.

treat the units as they emerge from the kiln, thus eliminating a second handling operation.

The concentration suitable for the spray operation ranges from one part of Silaneal 772 to twelve parts water, to as low as one part to eighteen parts of water. The final choice of concentration is best determined by trials on the actual units involved and, if possible, with the production spray equipment intended for use. For initial trials, a dilution ratio of one to fifteen is suggested. Satisfactory results at this concentration may enable the brick manufacturer to try even more dilute solutions.

In units with high salt content, it is often necessary to go to the more concentrated solution. This seems to be particularly true in units manufactured from high vanadium salt-carrying clays.

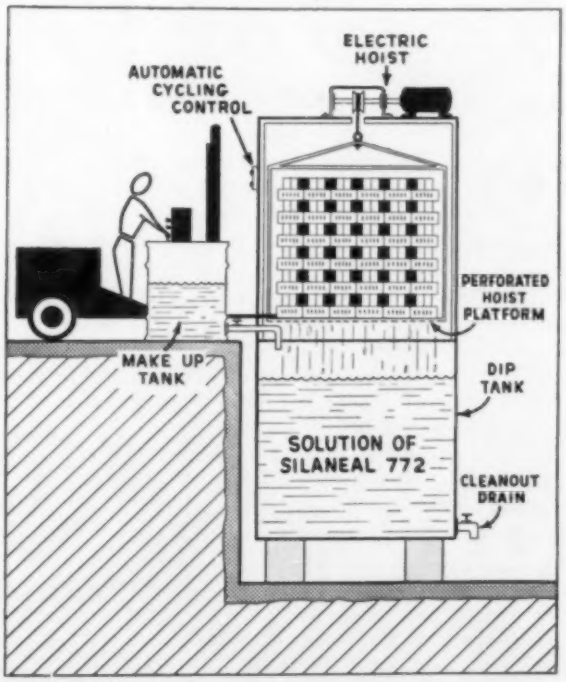
Another effect of concentration of the treating solution is to change the suction rate of the unit. The higher the concentration the lower the rate of suction becomes. As the rate of suction decreases, the unit tends to handle more like a glazed unit in laying up.

Equipment for Spray

Process equipment for spraying solutions on units is relatively simple in design. It consists of a reservoir tank capable of withstanding moderate pressures, three to four spray nozzles, a recovery tank under the spray nozzles to catch over-spray, and a moving belt to convey the units through the spray. The pressure tank should be of sufficient capacity for a half-day's operation so the process may continue with as little interruption as possible.

A plant producing 70,000 units a day may spray as high as 700 gallons of fluid in one day. This figure is based on a 50% over-spray The liquid should be delivered at about 20 psi. Constant pressure on the tank can be maintained by a small compressor.

The conveyer should be approximately one foot wide. The rate of travel of the conveyer should be about fifteen feet per minute.



Dip tank can be used for periodic kiln operations, with two ton hoist used in this suggested layout.

Brick pass on conveyor belt through booth; go right onto pallets or loading-storage area.

Use Chain Belt

A chain-belt type of construction of the conveyer is most suitable since it permits easy drainage of the over-spray solution to the recovery tank. An over-spray recovery system may consist of an open tank beneath the conveyer to catch the over-spray.

Brick particles and dust that are washed off the units during the spraying operation will be carried into the over-spray tank. For this reason, the intake of the over-spray tank pump should be fitted with a small screen to prevent damage to the workings of the pump. The collection and settling tanks may be very simple in design, the simplest of which is a 55 gallon shipping drum.

The best materials of construction for the spray equipment are black iron or mild steel. Galvanized metal is not satisfactory and aluminum fittings or equipment should definitely be avoided. Brass or bronze spray nozzles or fittings may be used, but may not last as long as iron fittings.

It will be noted that there is an exhaust stack on the spray chamber. If the spraying operation is conducted in an enclosed or semi-confined areas, an exhaust system may be desirable, but is not mandatory. However, inhalation of a mist or fog from spraying should be avoided.

Dip Application

The second technique for the use of Silaneal 772 is the so-called dip method. In this type of application, the complete unit is immersed in the treating solution. Plants that fire in intermittent kilns may find this the most suitable of the two methods. Stacks may be taken out of the kiln on fork trucks, moved directly to the dipping tank,

(Continued on page 62)

Can Burns Brick Block Recapture Backup For Our Industry?

Today there is in production an entirely practical 8 x 8 x 16" lightweight clay block that can better than double present tonnage.

Today we have in existence and use all of the machinery, men and techniques necessary to make this unit. We need no new developments in machinery . . . you can buy anything you need *today*.

Today, the way you think and react to these words will be the first step toward an industry that's going to grow lustily, nearly triple in size . . . or one that may eventually just struggle to keep what it has.

That's why we resort in this issue to this open letter to the industry to get your complete attention to a development that, at first glance, may just seem to be another product, another variation on an old theme.

The truth is that we're right now, *today*, faced with a development that can radically change our industry, and make the industry grow faster and larger than we dreamed could happen.

After more than a decade of development, from initial idea to experimentation, there is today *in production* a lightweight clay block that can recapture for us the backup market, a market we haven't really had for years now.

This unit, at this early stage, definitely appears to meet market requirements more completely than any masonry material ever offered before. By reason of low cost, comparatively easy production requirements, tested methods and machinery, light weight and other factors, we can capture the backup market. Any thinking brick man knows full well that the backup market can be the greatest tonnage potential for the brick industry!

Okay, what about this unit? How can it do this?

In brief, the unit can more than compete in costs; can cost less than present competing materials, and for this reason alone can go a long way toward bringing backup to our industry.

The unit has more-than-adequate strength; low expansion; dimensional stability; design economies. The unit is put in the wall in the same way as present competitive units.

The block is made with machinery and methods already well known to the industry. Because the requirements for appearance and strength aren't as tough as for first grade face brick, rejects will be minor. Added to these are such factors as reasonably moderate capital investment and minimum manpower needs.

And the block is totally practical for today's production. It's for sale—being used in the wall as you read this—it's fighting competition and winning right now.

All of these points, for good reason, are related to today's markets and production. The tripling of the industry doesn't take into consideration the coming boom. The production methods for today don't consider this: that the manufacturer doesn't yet, since the product is new, know the full potential for quick firing, for easy production, for low-manpower handling. But there's no need for this speculation at this point, since the block, *as it exists today*, can bring backup to our industry.

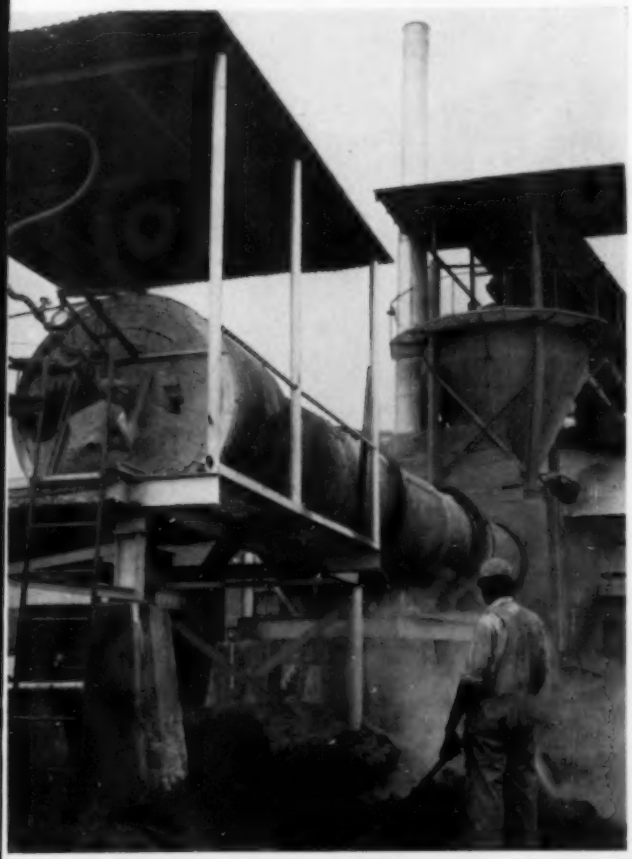
How The Burns Brick Block Is Made

Plant produces block with press, continuous drier, fired in tunnel kiln; plant uses own aggregate; present production is 36,000 brick equivalents daily, plans to make 240,00 daily.

Pilot plant production, on a commercial basis, of an 8 x 8 x 16" clay bonded unit was started in January by Henry Burns, Jr. at the Burns Brick Co.'s plant in Macon, Ga.

Preliminary reception of this large unit was so favorable that expansion, now in process, when completed will increase production from 3,000 units per day (36,000 brick equiv.) to 20,000 units (240,000 brick equiv.). Not only has the unit found a ready market but has proven to be economical of production after the technical problems, usually associated with new products, were solved. In fact, Burns Brick Block have been priced to be competitive with other materials of the same size.

The brick block now being made and sold by Burns weighs only 28 lbs. in the two core model, develops 1,200 lbs. psi. gross area compressive strength and has a water absorption of 12%. Made entirely of the red burning clay from which the company has made face brick for many years, the fired unit takes on a dark red color. The texture is similar to cement bonded lightweight clay aggregate blocks.



Burns uses gas-fired rotary kiln to produce aggregate from clay for block manufacture.

Size variation has been almost eliminated in the finished product and the drying and firing shrinkage is only 1/16" in the 16" length. This size reduction is uniform from the top to the bottom of the kiln car on which the brick block are fired.

For Backup Market

Developed to make a place for itself in the backup market, the brick block is not intended as a high grade facing material, although its appearance is equal to competitive block. Construction is now being completed in the Macon area using the new unit in exposed walls. Since the unit contains no lime or other alkalies, it should take paint readily and retain it for long life.

The response of the masons using the new unit in the Macon area has been gratifying in that they have made no comments for or against the unit, apparently accepting it as just another block and thus eliminating any great educational effort directed at this important group.

Weight Is Strong Point

As the brick block is being priced and sold to capture a major portion of the backup market, the reduced weight of 28 lbs. compared with similarly priced material with a weight of 42 lbs. should prove to be a strong point in acceptance of the brick block by the market.

While the comprehensive tests for thermal expansion and contraction caused by alternate drying and wetting have not been run yet, it is anticipated that the block, being all clay fired to high temperatures, will have the low coefficients usually associated with other clay products, like brick and tile.

This, will reduce the complexities of construction now required when using large units with much greater expansion rates. The elimination of expansion joints and reduced need for steel reinforcing would increase the advantages of the new unit.

The Burns Brick Block production line is the culmination of a research program dating back some time and marks the solving of several technical problems and indicates how such an operation can be intermeshed with the normal operation of a brick plant.

As now in operation at the Macon plant, the line consists of several major parts, the first is a rotary kiln op-

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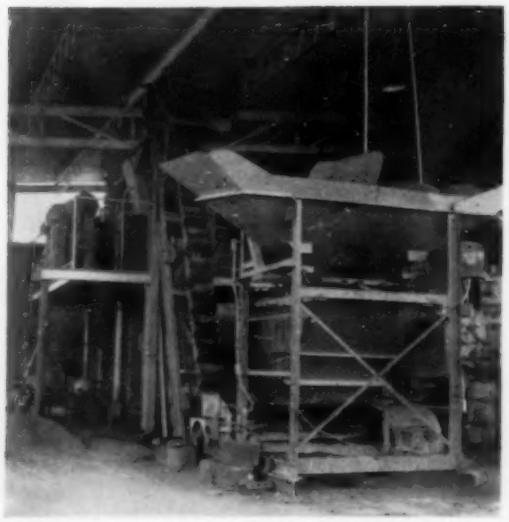

Batching, mixing of material is done here; bucket elevator carries block mix to block machines.

eration expanding clay for aggregate, a block forming operation, a rapid dryer and the same tunnel kilns which the company uses to burn the usual brick production of the plant.

By blending the brick block production line into the productive facilities of the plant as closely as possible, the capital cost of the line was held down, but did require major expenditures. The principal new installation is the 6 x 60′ rotary kiln used to make the expanded clay aggregate and the grinding equipment required to properly size the clinker. The kiln is fired with natural gas, operates continuously and currently is producing only a fraction of its potential.

Material Preparation

Clinker is cooled on a long apron conveyor and then is reduced in size with a disintegrator and a set of smooth rolls. Following screening the aggregate is carried to the brick block production area with a front end loader. This operation is scheduled to be replaced with a conveyor belt when the expansion is complete.

The sized aggregate and ground clay removed from the brick plant ground clay storage are put into the separate bins set over the mixer. Proper proportions of lightweight aggregate, ground clay, and water are fed from the bins into the mixer, agitated for a fixed time and elevated to the block making machine. This unit, a George, was obtained, used and altered in several respects to fit it for the production of the clay bonded unit, the production of which varies from usual Portland bonded block.

Two Hour Drying

Set up as a manually operated unit in the pilot operation, the expansion of production will require it to be automated and the entire setup duplicated. Two men are stationed at the machine, one forms the unit and the other offbears the palletized block to the dryer. With automatic forming and offbearing, labor will remain the same while the production increases from 1,100 units to 6,000 each shift.

The dryer unit takes two brick block side by side on cables, running through a 113 foot tunnel, 3 feet wide and high enough to accept the 8 inch high brick block. Timed to make the transit through the dryer in two hours, the brick block are ejected with air cylinders automatically and are cooled on a 226 foot conveyor that contains energized sections to control the speed of the units.

This cooling is required in order that the offbearer can handle the units from conveyor to the tunnel kiln car, as the temperature at the exit end of the dryer is 500°. In the dry state the brick block has adequate strength to allow them to be stacked nine high on the tunnel cars. The dryer is also one of the items that must be duplicated in order that higher production rates can be obtained. This unit is fired with natural gas and includes a recirculating system that allows for good control of the conditions in the dryer.

Fired In Tunnel Kiln

The tunnel kiln used for the firing of the new unit is one of four used by the plant for the firing of brick. With the limited production of the pilot operation, it has not been possible to determine the minimum firing time of the brick block.

In practice, production is held back in storage on extra kiln cars until a few days run is available for firing and the kiln is shifted from brick to the brick block.

As the brick block enter the firing section of the kiln, the schedule is increased reducing the firing cycle gradually from 36 hours to 27 hours. By the time this reduction is made the supply of unfired brick block is exhausted and the schedule must be retarded to accommodate the brick again entering the kiln.

Faster Firing Possible

The management of the company is anxious to determine the maximum rate and feels that a firing rate 100% faster than can be used on brick will be easily attainable and has hopes of significantly bettering this when manufacturing of brick block can push the tunnel kiln. When fired and removed from the kiln, the block are stacked in unstrapped cubes and handled with fork trucks from that point. The brick block has a good ring when struck and stands the wear and tear of shipment well.

As a check on this phase of the material, the company shipped a carload of the brick block to a job 200 miles away from the plant. An impact recorder placed in the car showed that the car had received an impact of six miles per hour during transit. On unloading, the breakage in this car ran to something less than one percent. Loss represented by cull material runs about 3% on the tunnel cars and these brick block are moved back to the crusher of the lightweight aggregate unit and broken up for reuse.

Demand Great

The reception of the unit has been such that the 3,000 brick block per day production has not been enough to build up any stocks of the unit and the company has not felt justified in accepting large orders until very recently. However, one job using 7,500 of the units has been completed and a project now under construction, a dormitory of the Georgia Industrial Home, will require 9,600 brick block. The first of these jobs is a large motel located on the edge of Macon where the material was used strictly as a backup and covered with plaster and face brick. The dormitory project calls for the unit to be left exposed in the basement.

(Continued on page 58)

Dunwody, Lee, Harrington, Hobson and Wakefield look over panels just made.

Latest Developments In Panels, Lightweight Shown

Annual meet features report on rising success of SCR Masonry Process; change planned in Re-nu-veneer distribution.

A new form of presentation—emphasizing the three important projects of light weight clay products, the "SCR masonry process"* and the "SCR building panel"** — was used by Robert Taylor and his staff to stress the importance of these developments to members attending the annual Membership meeting of SCPRF in the Geneva laboratory on June 18-19.

Other aspects of the overall research program covered briefly, but with adequate detail. New also for SCPRF was added emphasis this year on taking questions from the floor at the end of the report, and use of a panel to discuss any part of SCPRF work that members want to know about.

As one of the three primary topics, members during the first afternoon saw and heard a complete demonstration of work done to date on the lightweight material made in the furnace developed by SCPRF.

A test-firing of the furnace was part of the program, with this phase going very smoothly. Key points of this part of the program were addition of a fan at the furnace base to cool the material and to blow it into a collecting box that is also new.

Paul Johnson, SCPRF deputy director, in his discussion of the furnace noted that it is designed for 24 hour a day operation, with the furnace during the demonstration operating at a rate of 500 lbs. per hour. Full capacity of the unit is about 1,000 lbs. per hour. The mix for the demonstration bloated very well, with the members all busy at looking at and feeling the fired material. SCPRF provided samples for the members to take home.

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* Reg. T.M., Pat. Pend., SCPRF
** Reg. T.M., Pat. Pend., SCPRF

As a vital part of the furnace operation for future production use, SCPRF introduced and demonstrated a pellet forming device. The machine extrudes the clay through a wire mesh by use of centrifugal force pellets some 20/1000 of an inch in diameter. For free fall in the furnace, prevention of agglomeration and best bloating, the development of this device has been an important step toward success of the SCPRF lightweight in future plant production plans.

Testing of the lightweight material, in several forms and percentages, has been taking place. Part of the demonstration at Geneva included quick firing and drying of brick that were 60% aggregate by volume. Paul Johnson reported that tests have been run on some 100 samples of about 50 clays. Johnson also discussed various possibilities of adapting the process to differing clays by use of either different firing techniques and temperatures, or by use of corrective additives. Trials are continuing in use of

the aggregate in clays for extrusion and dry press operations, on an experimental basis.

As part of his summation of this part of the program, Director Taylor said that he feels full development of this process could greatly change the operation of the industry in years ahead.

"SCR Masonry Process"

As the second report in the primary three, the members heard a progress report on the "SCR masonry process." M. H. Allen, manager of field enginering and development, told of important gains during the past year.

The staff available for the process had been expanded to 9 men, with 6 in the field full time, one reason for the growing success, Allen said. Some 630 corner poles were sold in the past year to 69 masonry contractors. As another underlying reason for the greater interest, Allen noted that the process has received valuable publicity that has brought the attention of contractors and builders to the process.

The greatest success during the the year was in the Denver region and in the Mississippi area, with hard work on the local level by regional men responsible for the success, Allen reported. During this part of the program, Don Wakefield, regional director from Denver, and Dean Ramey, executive secretary for the Miss-La. Brick & Tile Mfrs. Assoc., reported on the accomplishments of their regions.

Template Developed

Wakefield showed and reported on a template developed by his crew for use on the process when a curved wall is being erected. (More on these two areas will appear in later feature stores in B&CR-Ed.)

Summing up the process report, Allen felt that a key to future success will be hard work and promotion on the local levels. The effort must be essentially local because, for one thing, of SCPRF's relatively limited manpower and inability to cover the county as effectively as local effort can.

For the third major element, the members witnessed a demonstration of the "SCR building panel" developed by SCPRF (and announced last year.)

Essentially, the report on the panel covered improved manufacturing processes particularly with the development of more flexible jigs. Shown to the members were two new double-jig units.

(Continued on page 63)

"A SURVIVAL HOUSE"
AN ARCHITECTURAL COMPETITION SPONSORED BY
SCPF PACIFIC NORTHWEST BRICK & TILE ASSOCIATION
SENIOR ARCHITECTURAL ENGINEERING STUDENTS

At SCPRF: Top, Yoder of Washington and Robinson of Tri-State look over the Survival House design competition winners. Below members listen to Director Taylor, study panel jigs.

the new BOYD PRESS

these improved features mean better brick at lower costs

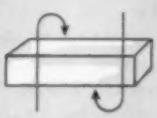
Constant mechanical improvement continues to make Boyd Press the logical choice for top profit dollar from high volume dry press brick production. Shown below are a few of the improvements which have been made to the Boyd Press in recent years. They combine to make *your* next press —*the best Boyd yet!*

BOYDAMATIC

Easily operated control system provides full automatic operation — or selective combination of manual and semi-automatic controls over various press operations.

TOP 'N BOTTOM ACTION

Pressure is exerted upon both the top and bottom of brick in the mold — to reduce density variance to a minimum, insure better, more stable brick.



DE-AIRING PAUSE

Momentary pause in press operation allows air to escape before final compression stroke. You get dense, finely proportioned brick and reduce distortion in firing and use.

1 **NEW BEARINGS.** High speed shafts are fitted with sealed roller bearings; low speed shafts with renewable plastic inserts.

2 **STRONGER TOGGLES** are of all steel rib construction. Load bearing surface increased 100%. All bronze or steel bearing surfaces are replaceable.

3 **HEAVIER FRAMES.** Heavier journals and more ribbing increase stability and rigidity of the Boyd Press.

4 **ALLOYING,** heat treating and flame hardening make gears, crankshaft, side bars and crosshead tougher, longer wearing—smoother running.

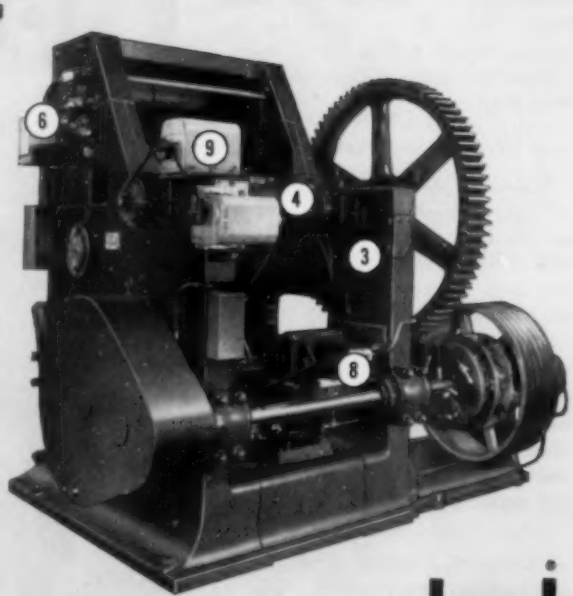
5 **END GRAIN FORMICA** used for frame wear plates. Is durable, smooth and easy to replace. Is non-"galling."

6 **AUTOMATIC FORCE-FEED LUBRICATION** is positive, thorough. Takes element of human error out of routine press maintenance.

7 **AIR OPERATED CLUTCH-BRAKE** gives instant response to *Boydamatic* controls. Is positive and trouble-free.

8 **AIR OPERATED CHARGER** is completely flexible. Can be operated continuously with press cycle or controlled for single stroke by switch.

9 **"BRAINS"** for the new flexibility of the Boyd Press is found in this sequencing rotary cam limit switch.



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boyd BRICK PRESS

Battelle men have developed a process of bonding alumina, zirconia, mullite, beryllia, or silicon carbide with phosphoric acid or aluminum phosphate, causing mixture to set making a true castable, refractory.

Phosphate Bonding of Refractory Compositions

by
Herbert D. Sheets, Jack J. Bulloff, and Winston H. Duckworth
Battelle Memorial Institute

Conventional refractory castables—those bonded with a calcium aluminate cement—are limited in maximum use temperature, not by the refractoriness of the aggregate but by that of the cement.

For many years, ceramic technologists have been intrigued by the problem of developing a castable whose refractoriness is essentially that of the aggregate. One possibility that has been suggested is to bond with a phosphate, from which phosphorus would volatilize at a sufficiently high temperature and leave no fluxing ingredient.

Phosphate Bonding

If phosphate bonding could be developed to provide a rather readily cast refractory with reasonable volume stability and strength throughout the temperature range of intended use, it should fill several needs. However, probably there would be reluctance to using it because of health problems and possible corrosion problems.

This research was undertaken with the aim of developing, for a particular application, compositions which:

(1) Could readily be cast into rather complex, large shapes, requiring a working time of 15 to 25 minutes, and low drying shrinkage.

(2) Would be volume stable and maintain some strength at all temperatures up to the melting point of the material.

Preliminary Experiments

A literature survey indicated that phosphate-bonded refractories might be developed that would meet these requirements. However, the literature on the subject was contradictory and confusing. Attempts to prepare specimens from suggested compositions were unsuccessful. The various compositions set too rapidly, did not set at all, were weak, or bloated.

It appeared that a reaction between phosphoric acid and either metallic impurities in the refractory grog or with metal picked up from process equipment (mixers, trowels, molds) liberated hydrogen, and caused the test specimens to bloat. To prevent this bloating, trials were made of additions of commercially available inhibitors such as are used in pickling operations.

Inhibitors Evaluated

Inhibitors generally are specific for acid-metal reactions, and it was hoped that they might not interfere with the acid-oxide bonding reactions. Several of these inhibitors were evaluated. It was found that 1 per cent of Rodine 78[2], a complex amine of unpublished composition, produced by the American Chemical Paint Company, added to the acid, eliminated the bloating. In addition, it was noted that the cured strength of Rodine-containing compositions was somewhat higher than strengths of compositions containing no inhibitor.

A mixture of alumina grog, fine reactive alumina or hydrated alumina, and phosphoric acid developed considerable strength on drying. However, it was not possible to develop a composition which would set without drying except by increasing the content of fine grog to the point where objectionable shrinkage and cracking occurred.

To obtain a set, a number of chemical additives were investigated, and addition of about 1 per cent of ammonium fluoride to the dry ingredients was found to work. The initial set took place in 20 to 30 minutes. It was observed that setting did not occur when only ammonium fluoride, and no Rodine, was present.

(Continued on next page)

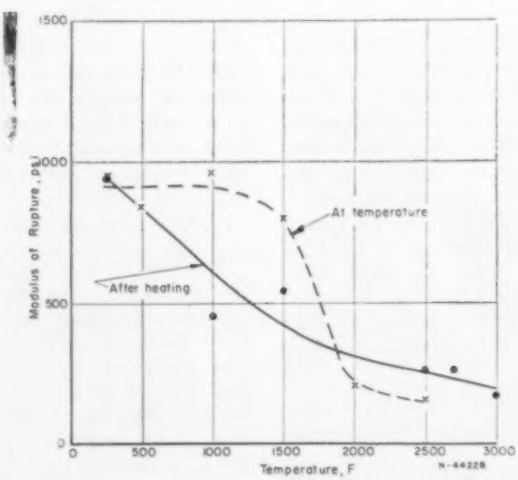


FIGURE 1 STRENGTH OF PHOSPHATE-BONDED ALUMINA

The role of these agents is not understood. Another observation, which also is unexplained, was that the composition did not set to as strong a body when the ammonium fluoride was added in solution.

Water Content Important

Another factor which was noted to be important in these compositions was the water content.

When the water content was too high in a given composition, the bond tended to migrate toward surfaces exposed to the air. If the castable was too dry, it was difficult to obtain high density or mold fill. This problem is somewhat more vexing than for cement-bonded castables, since the phosphate-bonded materials tend to be "doughy" when moisture contents are low. The range of water content for good castables is small.

The workability of these compositions was satisfactory. The working time before the castable set was normally 15 to 20 minutes. This period could be extended somewhat by mixing the acid or aluminum phosphate and water prior to adding them to the dry ingredients. A considerable amount of heat was liberated during the setting reactions and the compositions shrank slightly during setting and curing.

Alumina Bonding

The work confirmed the statement of Gitzen, et al.(1), that a higher strength can be obtained by bonding alumina with phosphoric acid than by using aluminum phosphate for the bonding agent.

A formula for a phosphate-bonded alumina castable which worked well for the particular application is given in Table 1. The compressive strength of a 2-inch cube of this composition cured at 230 F. was 15,000 psi. Figure 1 shows the modulus of rupture determined with 1 x 1 x 5½-inch-bars broken by midpoint loading on a 5-inch span of this composition after a 5-hour soak at various temperatures, and also the modulus of rupture determined at various temperatures.

Bubble alumina could be substituted for the coarser tabular alumina and fused alumina or fused mullite could be used to replace all of the tabular alumina, without affect on workability.

TABLE 1. Typical Phosphate-Bonded Alumina Composition

Material	Composition, weight per cent
Tabular alumina[1], 14 to 28 mesh	38
Tabular alumina, 28 to 65 mesh	13
Tabular alumina, 65 to 150 mesh	9
Tabular alumina, minus 150 mesh	13
Tabular alumina, minus 325 mesh	4
C-730 aluminum hydrate	9
Ammonium fluoride	1
85 per cent phosphoric acid with 1 per cent Rodine 78[2] added	9
Water	4

[1]Aluminum Company of America, East St. Louis, Illinois.
[2]American Chemical Paint Company, Ambler, Pennsylvania.

Zirconia Bonding

The work on phosphate bonding of zirconia and on mixtures of zirconia and zircon led to compositions quite different from those which were developed for alumina. The composition given in Table 2 worked well for one application. It was found that higher strengths were obtained when aluminum phosphate was used as the phosphorus-bearing additive. It also appeared that the use of zirconium silicate was preferable to zirconium hydroxide or the available active forms of zirconia. The Rodine and ammonium fluoride appeared to perform in the same fashion as in the alumina composition.

Bonding of Others

While most of the work was concentrated on bonding of various types of alumina, mullite, and zirconia, a preliminary investigation indicated that phosphate bonding of beryllia and silicon carbide also might be feasible. The best beryllia compositions evaluated to date were similar to the previously mentioned alumina composition.

The optimum amount of beryllium hydroxide was found to be in the range of one to four per cent (contrasted to 9 per cent of hydrated alumina). Combinations of silicon carbide, aluminum phosphate, and ammonium fluoride set to give reasonably strong specimens, but these compositions tended to bloat during curing. Roasting the silicon carbide grain prior to addition of the bonding bonding agents reduced this problem, but the results were erratic. More development of the silicon carbide compositions will be required.

Complicated Mechanism

There is no doubt but that the mechanism of phosphate bonding is complicated. However, a thorough understanding will be necessary before the optimum bond can be developed and before apparent inconsistencies can be explained.

To describe the bonding action as a simple acid-base reaction where H_3PO_4 reacts with Al_2O_3 or $Al(OH)_3$ in the presence of H_2O to form $AlPO_4$ is certainly oversimplifying the situation.

Some 15 different phases of hydrated aluminum phosphates have been detected so far, and indications are that vitreous rather than crystalline forms may be involved as intermediate steps in the development of the bond.

$AlPO_4$, which undoubtedly is present, exists in 6 crystalline forms paralleling the alpha and beta forms of quartz, tridimite, and crystobalite. It is well known that SiO_2 can form large chain, net, and sheet structures, and that such structures are strong, cohesive, and high melting. $AlPO_4$ may behave in a similar manner.

TABLE 2. Typical Phosphate-Bonded Zirconia Composition

Material	Composition, weight per cent
Bubble zirconia, 12 to 28 mesh[1]	36
Bubble zirconia, 28 to 65 mesh	18
Zircon sand[2]	18
"G" milled zircon	18
Alkophos C[3] with 1 per cent Rodine	7
Ammonium fluoride	1
Water	2

[1]Norton Company, Worchester, Massachusetts.
[2]Titanium Alloy Manufacturing Division, National Lead Company, Niagara Falls, New York.
[3]Monsanto Chemical Company, East St. Louis, Illinois.

(1) Gitzen, W. H., Hart, L. D., and MacZura, G., Phosphate-Bonded Alumina Castables: Some Properties and Applications, American Ceramic Society Bulletin, 35 (6), June 1956.

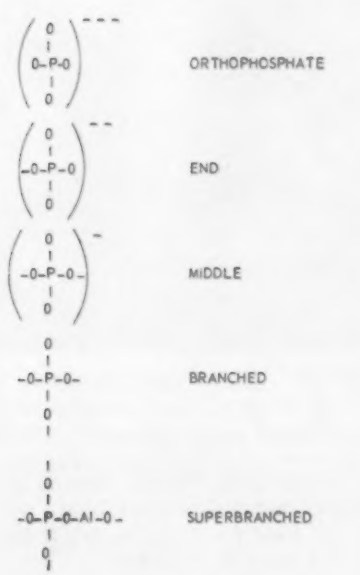
Initially, a trivalent phosphate anion is present. As the mixture dries and as the acid reacts with the alumina, covalent polymerization occurs. This results in bivalent PO_4 units which will become "ends" in chain polymerizations. Two of these can fuse to form a tetravalent pryophosphate.

As the reaction proceeds, PO_4 units form with only one formal charge remaining. These units may be called "middles." One unit, terminated by two of the previously formed "ends" give a family of linear polyphosphates.

The next step in the development of the bond comes from PO_4 groups having no formal charge but capable of forming "branches." Branching, such as is proposed here, could give rise to a sheet structure.

The foregoing, "ends," "middles," and "branches" involve only the phosphorus and oxygen atoms. To explain the unusual properties of phosphated-bonded alumina, one would expect the Al atom to become involved in these reactions. Structural chemists believe in the formation of "super branches" which are capable of 3 dimensional growth. Thus, phosphate bonding can be viewed as a hetropolyanionization process leading to the formation of strong oxygen polyhedral structure.

FIGURE 2. STRUCTURAL PHOSPHATE UNITS



If this picture of the bonding mechanism is correct, many factors can influence the bonding reactions. Water content of the original batch, availability of the aluminum cation, temperature and rate of drying, and the presence of impurities all can be expected to influence the strength of the bond.

Conclusions

True refractory castables prepared from alumina, mullite, beryllia, zirconia or silicon carbide grog bonded with phosphoric acid or aluminum phosphate were formulated. The use of Rodine, a complex amine which inhibits reaction between metallics and the acidic agent, and ammonium fluoride, which accelerates setting of the castables increased the usefulness of phosphate-bonded compositions.

Acknowledgement: We are indebted to Dr. John van Wazer for his assistance in preparation of the discussion of phosphate chemistry.

First OSU Short Course Held

A blue ribbon panel of instructors was the feature of the three day short course jointly sponsored by the Ohio Ceramic Industries Association and the Department of Ceramic Engineering at The Ohio State University. The short course was held on the Campus in Columbus and was attended by over fifty people from Ohio plants and interested suppliers to the industry. Nine lectures were presented during the meeting that lasted from June 16 through the 18th.

This meeting, the first of several contemplated during the next few years, was limited to the discussion of raw materials for the structural clay industries and how their fundamental properties affect drying and firing operations as well as the characteristics of the finished product. The leading experts on each phase of the subject were able to consider thoroughly all questions brought out in the lectures.

Dr. Robert L. Stone was the lead off speaker and introduced the general subject of the course with an outline of "The Clay Minerals." Major divisions of the raw material group were handled by Dr. Ralston Russell, Jr. who spoke of "Ball Clays and Kaolins." Russell was followed by Dr. Ernest Ehlers whose subject "Fireclays" and "Shales and Surface Clays" completed the general treatment of structural raw materials.

In his lecture of the second day of the course, Dr. Hammer from Bowling Green State University spoke on "Soluble Salts in Clays" and brought out the fact that efflorescence on brick after they are in the wall can be traced to many sources. Some of these causes were described as being under the control of the manufacturer and some were outside his control. Dr. Hammer blamed atmospheric pollution by sulphur dioxide as one of the cause of unsightly efflorescence. The action of sulphuric acid on the limey constituents of a masonry wall was described as being the chief trouble maker.

"Non Plastic Components" were covered by Dr. Russell. The important effects of these raw material portions on forming, drying, firing and the finished product was brought out and the manner in which they could affect production economies and product acceptance.

"The Glassy State" and "Fluxing Materials and Glass Formers" were the subjects of Dr. H. H. Blau and Dr. W. R. Foster, Dr. Blau described the physical condition and appearance of the glassy state as well as its properties which are so important to the clay products industry. Dr. Foster reviewed the different materials that are present naturally in raw material or that can be added to promote and control the formation of the glassy phase.

Oxidation Processes

Lectures on "Oxidation Processes in Firing" by Dr. Wayne Brownell of Alfred and "Firing Expansion and Shrinkage Phenomena" by Dr. J. O. Everhart closed the meeting.

Dr. Brownell outlined the steps in the firing process required to properly remove the sulphur and carbon contaminants and indicated the problems involved in the elimination of the effects of vanadium on face brick. He also brought out that the brick kiln must be considered as a heat treating device and not as a fire box for the combustion of fuel in the most efficient manner. In a series of firing curves it was brought out that the flashed colors can be accurately controlled and predicted.

BURNS BLOCK Continued

The present expansion of production facilities is based on the readiness of builders to use the new unit and the completely satisfactory production techniques that have been worked out at the plant. At present the operation is being run on a three shift basis.

The anticipated labor requirements for the expanded operation of 20,000 units a day will be the same, or only slightly greater. This will be possible because of the unused capacity in parts of the line at the current rate and because most manual operations will be mechanized and made automatic.

Plans call for a productive capacity of 400,000 units a month which is a brick equivalent of 4,800,000.

The technical information that has been accumulated during the research phase of the development has been made available through Burns to interested manufacturers on a consulting basis. Burns, a registered engineer in Georgia, has indicated that the principles and the techniques used will be adaptable with changes to a majority of the nations clay plants.

Des Moines, SCPRF Study Rubber Dunnage Use

Anyone who has ever dropped a brick and seen it break or chip will easily imagine that breakage loss for brick in transit by rail is heavy. The actual figure can run as high as 20 to 30% in packaged shipments, it has been reported by the Des Moines Clay Co., Des Moines, Iowa.

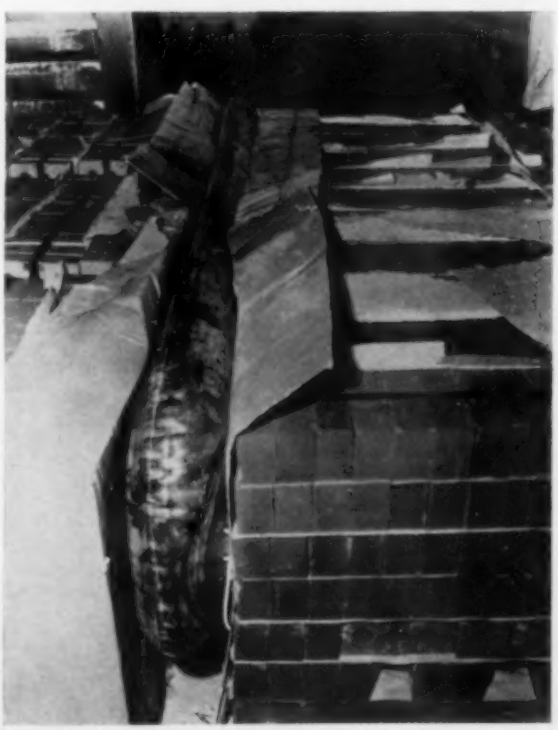
This condition has led to extensive study by the Structural Clay Products Research Foundation of means to cut losses and damage claims. Trial and error have led at least to "Brace-Fast" rubber dunnage bags made by New York Rubber Corporation, Beacon, New York.

A recent test involved a shipment of 18,200 Red Colonnade face brick weighing 73,000 pounds. The brick are strapped in packs of 100. Shipment was made from Des Moines, Iowa, to Alexandria, Minnesota, by the Des Moines Clay Co.

The "Brace-Fast" dunnage bags were placed at one end and the middle of the freight car, inflated to six pounds pressure. Despite the fact that the packages of brick moved six to eight inches backward and forward during transit, shock was entirely absorbed by the cushioning and return pressure of the "Brace-Fast" bags. Damage to brick affected only ½ of 1%, a saving of 97 to 98% over earlier shipments to the same job.

Bruce Paterson, general manager of Des Moines Clay Co., states, "We were most happy with the results of the test and have already returned the bags for immediate use in another car."

This experience with a cargo of a damageable commodity is in rough correspondence with carefully devised tests run on metered apparatus. In these tests, 3000-pound loads of coiled steel strapping were tested on a Gaynes Combur machine. Shocks were recorded on Impact Register Company's impact meter. Comparative tests were run with and without "Brace-Fast" dunnage bags. With the bags inflated to 2 pounds pressure the reduction in impact on the load was determined to be over 90%.



"Brace-Fast" bags are made of single-ply 13-ounce nylon duck covered with neoprene. The replaceable bladder is also neoprene. Bags in use are commonly inflated at 2 to 10 pounds pressure but in destruction tests have gone as high as 50 pounds before failure. Material and construction is similar to that of inflatable life rafts used by the Navy. Sizes run from 2 x 4 feet to 4 x 9 feet, though special sizes can be made to order.

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Why B&W Insulating Firebrick in Periodic Kilns ?

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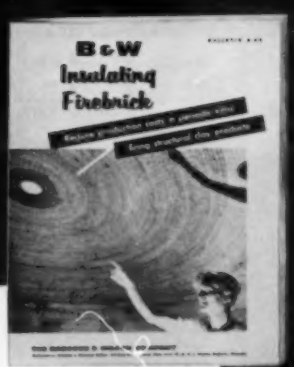

Since B&W IFB are lighter than other insulating firebrick, they insulate better. Thus, they save more fuel.

The lighter weight of B&W Insulating Firebrick provides low thermal conductivity and lower heat storage. As a result, the kilns heat and cool more quickly, thereby appreciably increasing production. B&W IFB also aid in reducing rejects by maintaining uniform temperatures within the kiln.

B&W IFB are further suited for use in periodic kilns because their light weight, high hot-load strength and negligible shrinkage permit thinner, less costly wall constructions. In addition, B&W IFB are easier to shape and handle . . . make construction and maintenance simpler.

For information on how lightweight B&W Insulating Firebrick can increase production and cut costs in your kilns, consult your local B&W Refractories Representative or write for Bulletin R-43.

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Research, Advertising Main Topics At NCPMI Meet

General Membership meeting hears reports on depletion, specifications; uses closed circuit television to present advertising report.

Conover of Gladding, McBean with Lawrence of Pomona Terra-Cotta.

Frantz of Graff-Kittaning with Cochrane of CSPA and McClave of Superior Clay.

Bob Scott of CPA here with Brown and Mason of Dickey.

Campbell of Dickey, Dave Skylar, and W. D. Anderson of SES.

An outline of research plans and projects, novel use of closed circuit television, and Board of Directors report were key items in the Annual meeting of NCPMI, held in Washington May 12-15.

The general membership meeting was preceded by various committee meetings on May 13 and a board meeting on May 14.

As a part of the meeting, President G. A. Robinson reviewed the dedication of the NCPMI-D. M. Strickland Research Laboratory (reported in the May Annual Pipe Issue of B&CR.)

Research Reports

E. C. Clemens, vice president of Cannelton Sewer Pipe Co. and a member of the Research Advisory Committee, outlined some of the projects in operation at the present time in research, and the plan under which the new laboratory will operate.

The Research committee recommended that phase reports be continued, and that detailed reports be made monthly on all research work.

Under the new laboratory schedule, the Research Director, A. J. Reed, will conduct technical demonstrations twice a month by pre-arrangement with the Research committee. It was suggested that material suppliers be permitted to use lab facilities, but through prior approval of the research director. Material suppliers will be given information on various research projects.

Dyer of Kaul Clay and Gibson of Dickey look over the TV set-up.

A. J. Reed, vice president and Research Director, reported on research projects, particularly on new substances being examined for use as jointing materials. He also described methods for the jointing of large size pipe. Both of these are projects that have been incorporated into research assignments.

In describing the research method for increasing the strength of vitrified clay pipe, Reed stated that three phases are being studied: one affecting the pipe shape; one on prestressing methods; one on surface coatings.

Plumbing Codes

A. G. Cochran, president of CSPA, reported for the Operating and Specifications committee, suggesting that present plumbing codes be brought up to performance standards. He also discussed the new specification for plastisol joints for vitrified pipe, which will be handled through an ASTM committee.

M. R. Hardin, W. S. Dickey Mfg. Co. vice president, reported for the Depletion Committee, of which he's chairman.

Television Used

A novel approach was used in presenting the public relations program, which was conducted by David Skylar and Robert Schroeder of Griswold-Eshleman Co. This part of the program used a closed TV circuit to dedicate and announce the Public Relations campaign for 1959.

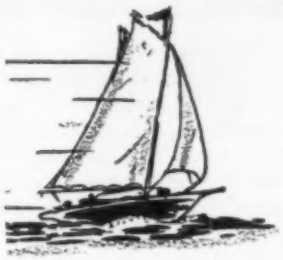
N. J. Mark Advertising Committee chairman, summarized activities of that committee while Norman Malone of Norman Malone Assoc. summarized results of the 1957-8 advertising

(Continued on page 68)

Duffy of Stillwater talks with research director Reed.

Smooth Air Handling

With ROBINSON Fans



On Continuous Dryer and Tunnel Kilns insure maximum, economical production of superior, uniform quality ware.

Each ROBINSON Fan is built to meet the exacting demands of the work to be done.

DRYER	*TUNNEL KILN*
Heat Supply	Combustion Air Exhaust
Recirculation	High Temperature Recirculation
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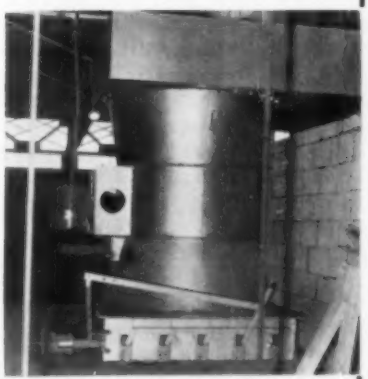
When you plan new facilities, or the revamping of existing dryers or kilns, it will pay you to place the "Air Handling Problems" in the hands of Robinson's especially trained engineers.

SEE OUR CATALOG IN Ceramic data book Page 283



The vertical Robinson fan at the entrance end of the two-track dryer in Pl. 5, The Laprairie Brick & Tile Inc., Laprairie, Que., Canada.
Three similar horizontal fans are spaced along the tile and Siporex block dryer.

STRENGTH AND QUALITY

ROBINSON VENTILATING COMPANY

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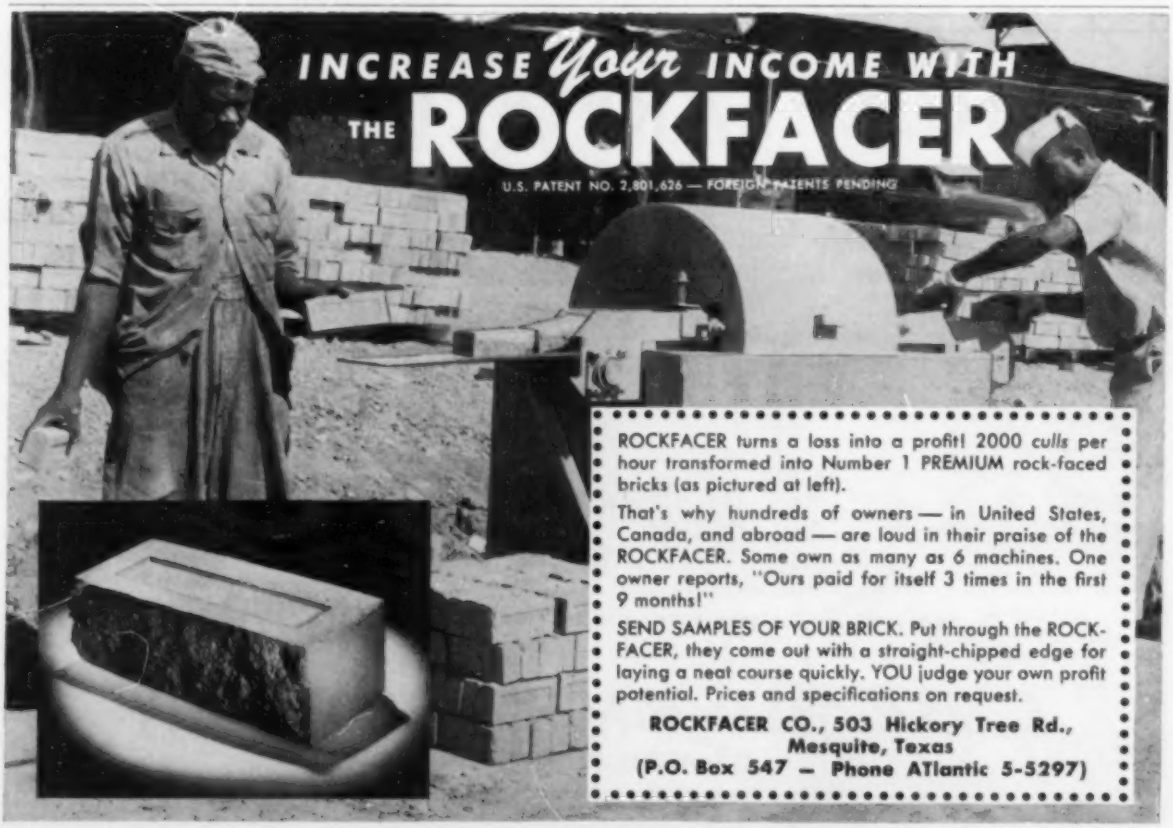

ROCKFACER turns a loss into a profit! 2000 *culls* per hour transformed into Number 1 PREMIUM rock-faced bricks (as pictured at left).

That's why hundreds of owners — in United States, Canada, and abroad — are loud in their praise of the ROCKFACER. Some own as many as 6 machines. One owner reports, "Ours paid for itself 3 times in the first 9 months!"

SEND SAMPLES OF YOUR BRICK. Put through the ROCKFACER, they come out with a straight-chipped edge for laying a neat course quickly. YOU judge your own profit potential. Prices and specifications on request.

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processed, and removed to the storage or shipping area without ever breaking the stack into individual units.

In the dip process, the contact time of the units with the treating solution is normally much longer than in the spray process. This results in a much deeper penetration of the treating solution into the unit. Thus, to achieve the same degree of effectiveness in the finished unit, much lower concentrations of Silaneal 772 may be used. In this process, satisfactory concentrations may range from one part to 30 parts water to as low as one part to 100 parts of water.

The effects of the dip tank concentration follow the same general pattern as in the spray technique. Higher concentrations and longer dip times result in greater water repellency and reduced suction. The longer contact time inherent in the dip process results in greater depth of penetration of the treating solution, insuring a finished unit equal in properties to that obtained by the spray methods.

Higher concentrations, typical of those used in the spray techniques, should not be employed in the dip process. The Silaneal 772 pick-up on the unit will be excessive. The result will be the use of unnecessary quantities and also may result in a white deposit. This white deposit is one of the reaction products which form through the curing process, but cannot be seen on a unit which has been properly treated. Selection of the proper concentration will usually be found at a dilution ratio of one to 60 to one to 85 parts of Silaneal 772 to water. As in the spray process, it is recommended that trials be run on the specific units in question.

Along with the immersion test already mentioned (pick-up of water in brick immersed in one quarter inch of water for a period of 24 hours), a forced efflorescence test is helpful in determining the proper concentration to use. In this test, the treated unit is immersed, one end down, into one-half inch of 10% sodium sulphate solution. An untreated control unit is immersed at the same time. The degree and rapidity with which efflorescence appears is an indication of the effectiveness of the treatment. On a properly treated unit, one may expect complete resistance to efflorescence salts on the uppermost surface of the immersed unit.

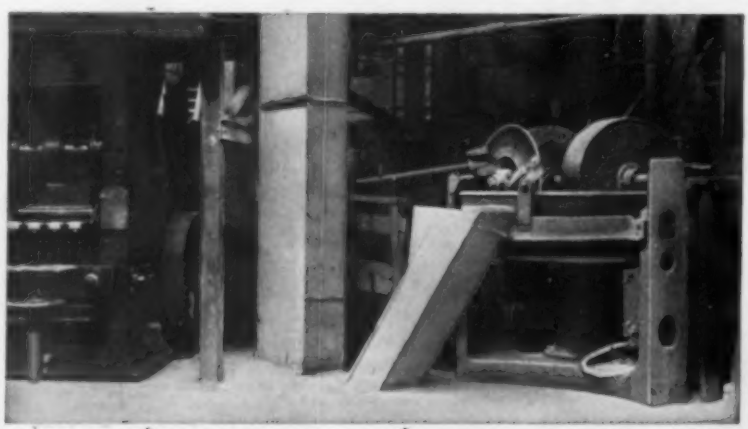
Equipment for Dip Applications

The equipment necessary for the dip process consists of a dip tank, a hoist and a make-up tank. A dip tank capable of handling one stack of brick might have a typical dimension of 60 x 40 inches and 60 inches deep. During processing, brick particles, chips and dust will tend to settle at the bottom of this tank so the tank should be fitted with a drain situated on the side and at the bottom of the tank. Located immediately above the tank is the hoist platform, the bed of which is perforated or slotted so as to permit easy drainage of a freshly dipped stack of bricks. An electric hoist of two ton capacity is suitable to raise and lower the platform.

A make-up tank of 50 gallon capacity is ample. If the make-up tank can be positioned above the level of the dip tank, gravity flow of fresh make-up solution into the dip tank is possible.

(Continued on page 67)

THE CLEARFIELD MIXER



No. 610 Clearfield preparing dry press material in fire brick plant.

Write today for Bulletin C-5 for complete information.

For Ceramic and Refractory Materials

In preparing clay materials for use in ceramic and refractory plants, the Clearfield Mixer with the revolving bottom is the most efficient and economical means of blending and tempering. Dry, semi-dry and high moisture content mixes are produced with thorough diffusion of all components of the batch. There is no segregation of larger or smaller parts. A uniform, even-textured clay mixture is produced with no lumps or voids. If you have a mixing problem, contact us for technical assistance.

CLEARFIELD MACHINE COMPANY

CLEARFIELD, PENNSYLVANIA

Pacific Coast Representative: Fernholtz Machinery Company, 8468 Melrose Place, Los Angeles 46, California

SCPRF—Continued

Doing the major part of this report was C. B. Monk, Jr., manager of the engineering and architectural research division. A great amount of work has been done in developing better metal fittings, and in research on joints including plastic joints.

Improvements made in the double-jig are designed to simplify operation and to increase flexibility of the jigs. To this end, sidewalls have been redesigned so that sides are no longer fixed, allowing casting of a wider size range of materials. Casting time during the demonstration ran at 8 minutes per pair of panels.

Help From Outside

Among those cooperating with SCPRF in developing joints and fittings for the panels, Taylor reported, are Acme Steel Co., B. F. Goodrich, Dow Chemical, and Minnesota Mining and Manufacturing.

The members were given a complete cost breakdown for putting the panels into plant production, and also architectural drawings of panel construction. Costs would, of course, vary depending on the amount of automation included in the plant adoption of the panel casting process.

Work is being done on a new method of using the panels for large, non-residential construction that appears to be on the way to getting new, low cost construction data.

Other Reports

As part of the new approach to the meeting agenda, in the first morning Taylor reported briefly on other work being done by SCPRF.

In work on blast-resistant buildings, C. B. Monk, Jr., has prepared a construction handbook incorporating design ideas learned from previous tests. The book will be featured as a "keyed" 'item in future SCPI national advertising. Taylor noted that a design competition at Washington State College was based on the survival-core concept (news story elsewhere in issue) and gave credit to Ralph Yoder and his Northwest manufacturers for their work in developing the competition.

The "SCR re-nu-veneer"*** development is at a temporary stage of more-or-less reorganization, Taylor said in effect. SCPRF is considering new ways for distributing the product either to replace the old setup or to add to it.

In a stage of tuning-up and eliminating some production bugs is the "SCR package line"****, Taylor reported. Modifications are being made to the automatic packaging line now in Des Moines. Taylor also, in passing, noted work being done at Des Moines on rubber dunnage.

Taylor reported for Dr. Wayne Brownell of Alfred University on work in fundamental research into the properties of clay before and during the firing processes. Work here includes research in moisture expansion and efflorescence staining, plus study of sulphur in clay.

Taylor's report also covered some work with Styrofoam and he noted that the thermal research work has more-or-less paused, because of 1) two year's accumulation of data which must now be collated and 2) manpower diverted to more pressing projects.

An innovation for the SCPRF meetings was a panel discussion period, using Allen, Monk, Taylor, Johnson, Plummer and Brownell to answer any pertinent questions from the members.

Topics of discussion involved most areas of SCPRF work: Panels, lightweight, the panel house, re-nu-veneer, etc. The purpose was to cover any question that a member felt was unanswered by the more formal discussion.

*** Reg. U. S. Pat. Off., Pat. Pend., SCPRF

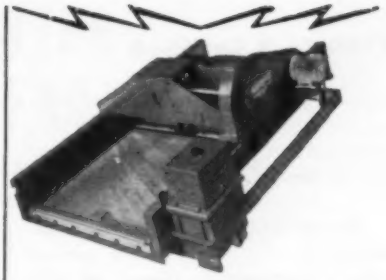
**** Reg. T.M., Pat. Pend., SCPRF

TRI Fall Membership Meeting at Broadmoor

Executive secretary Avery Newton has announced that the annual Fall Membership meeting of TRI will be held Sept. 11-12 at the Broadmoor, Colorado Springs, Colo.

ACS To Meet In Fall at SCPRF

The fall meeting of the Structural Clay Products Div. of the ACS will be from Sept. 18-20 at SCPRF, in Geneva, Ill., according to an announcement by Wayne Brownell, of Alfred University.



More and Better SCREENING for your Dollars

Production records prove that the cost of more tons of accurately sized screened clays and shales is lowest with the Leahy® Screen.

Many factors contribute to this efficiency. You start with original equipment cost. Next go to the actual plant production records. What counts there is the ability of the Leahy Screen . . . *on finer mesh screening* . . . to operate on long, continuous working schedules without stopping for repairs, adjustments or clean-up.

Check with other producers in your area. They will tell you exactly what they tell us . . . the Leahy Screen is, in all respects, outstanding in the field. Cost per ton of quality screened products is way, way down.

Definitely, the Leahy Screen assures you the most profit. Send for Bulletin 16-EH.

THE Leahy NO-BLIND VIBRATING SCREEN

— offers —

INTEGRATED HEAT SCREENING

THE DEISTER CONCENTRATOR COMPANY

The Original Deister Co., Est. 1906

913 GLASGOW AVE. FORT WAYNE, IND.

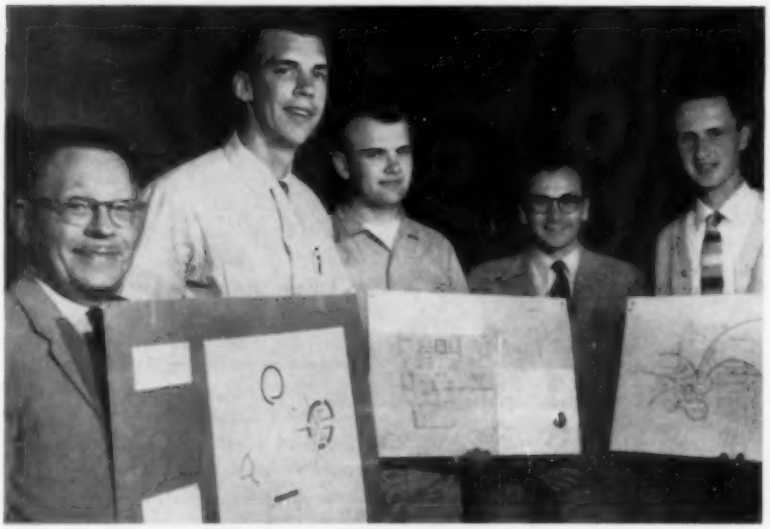
YARD TALK Continued

son. Four factories had no lost-time accidents: Midvale; Refractories Div. factory 4 and 5 at Parral; and factory 14, Strasburg, Ohio.

Boron Clay Products, Greensboro, N. C., also got a safety award recently, as part of the city's industry which was honored. The city industrial accident rate is less than one-fourth of that of the state as a whole. Boren got an award for the 8th consecutive year with a good safety record. Orton A. Boren, by the way, is the local Chamber of Commerce president.

SCPI would like to remind you that the AIA Centennial Concert Recordings are still available for your promotion use. This 60-minute, long-playing, high-fidelity record is very handy as a promotion tool to use on your architects. Don't forget that in many cases, these records will sell brick to the architect while he's at home, relaxing.

Survival House Design Competition



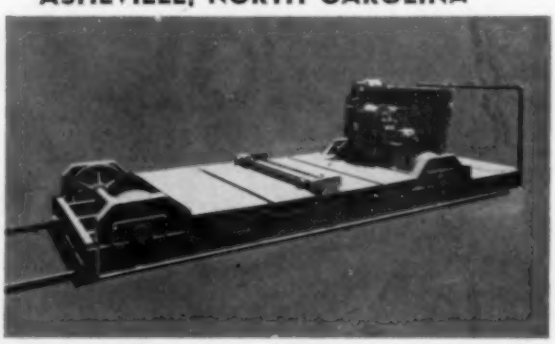
A design competition revolving around the ideas of the SCPRF Survival House with its protective core was recently held at the State College of Washington Dept. of Architectural Engineering. The three-week project was to "explore the design potential of a house, a portion of which is to be capable of withstanding a nuclear explosion approximately one mile from ground zero. This portion of the house . . . must be above ground."

Winner of the top prize, $50, was Ronald Nelson, second from left. Others, from left, are Harry Weller, college department chairman; Larry Fisher, second prize winner; Gerald Roeder, instructor in the department; Robert Grossman, third place winner.

ENGINEERING ASSOCIATES, INC.

P. O. BOX 5284 **ASHEVILLE, NORTH CAROLINA**

The EA Hydraulic Transfer Car has brought response that has amazed even us. The smooth drive has proven itself not only in red brick plants, but also in refractories, sewer plants. New plants have been designed and built around the use of a pusher on the car and existing plants have been improved based on same. Why not look into this?



Represented By: **Forrest A. Paschal**
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Rebuilts since 1902
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Compressors (Rebuilt)			Vacuum Pumps (Rebuilt)	
100 CFM	150 PSI	6 x 7 Ing.	250 CFM	12 x 6 Ing-15
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234 CFM	100 PSI	9 x 9 Ing.	800 CFM	18 x 9 Worth.
368 CFM	100 PSI	12 x 10 Ing. or CP	1085 CFM	21 x 0 Worth.
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528 CFM	100 PSI	14 x 12 Ing.	1882 CFM	28 x 10 Penn.
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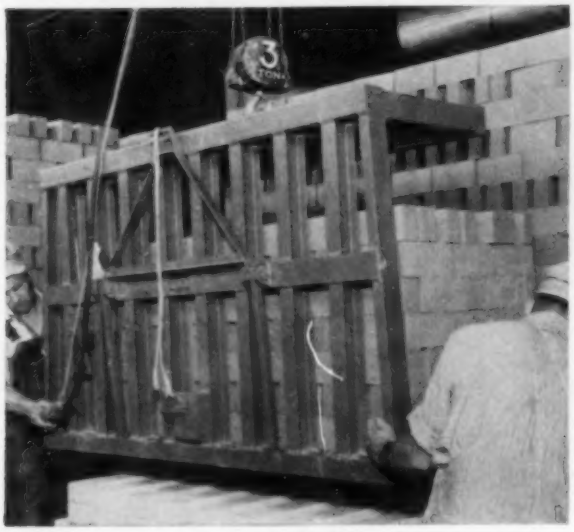

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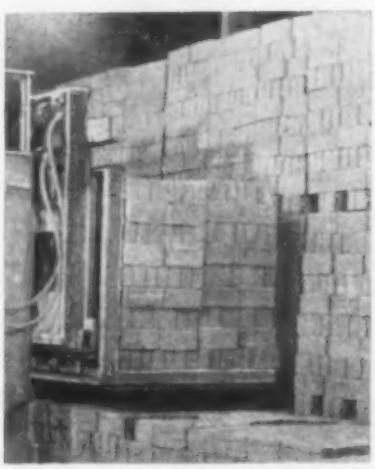
- Save Time
- Save Money
- Save Labor

Also Priester truck cranes for unloading from delivery trucks. Write for Bulletin.

Brick in units of any size are handled by Priester Brick Forks. Automatic operation simplifies and speeds brick handling setting and drawing kilns, loading and unloading trucks and box cars.



Forks with flap grippers for cored and solid brick. Give service . . . take the hard work out of brick handling. Write today for more information.

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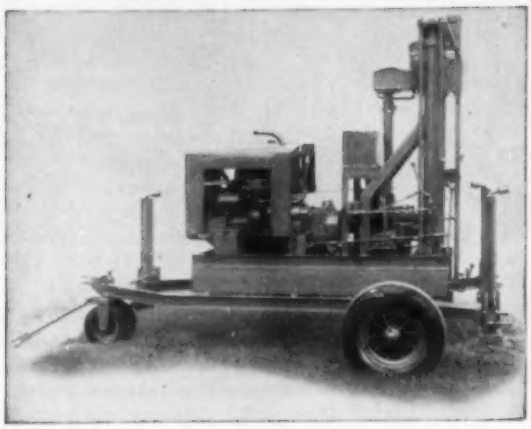

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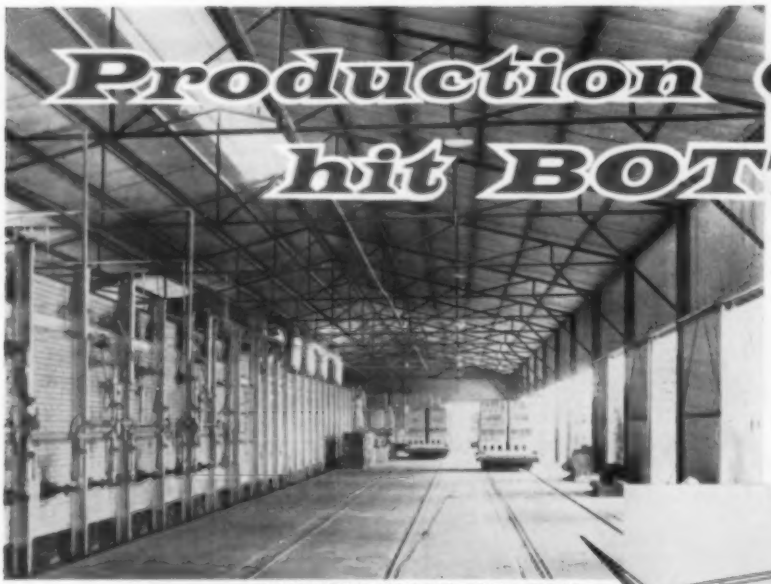

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A Varco steel building keeps production cost down by giving expensive equipment the kind of shelter and protection it must have in order to operate with lasting efficiency. It's good sense today. . . . It's good profit tomorrow to improve and modernize with low-cost Varco Buildings.

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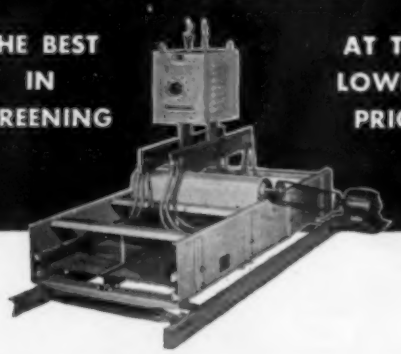
AT THE LOWEST PRICE



The Most Modern and Efficient Electric Heating Equipment

SURPRISINGLY LOW IN COST

Be sure to get the facts regarding the new improved Universal Screens and Unilec Heating! Just ask for catalog #150.

UNIVERSAL
VIBRATING SCREEN CO.
Racine, Wisconsin
Quality Screens Since 1919

Central location of the dip equipment in the brick yard is an obvious advantage.

The complete dip cycle time will run about five minutes, including three minutes for lowering, immersion, and raising the units in the tank. It is convenient to have a timing mechanism which may be actuated by the fork truck driver. This device lowers and then automatically raises the load after the dip time is completed. This eliminates having a man operate the dip tank. If two or more of these dipping units are in operation, the fork truck will be kept constantly busy bringing fresh stacks from the kiln and removing freshly-treated stacks from the dip tank platform, without lost time or wasted motion.

Materials of construction are essentially the same as those used in the spray process. Black iron and mild steel are most suitable. Galvanized metal is not desirable and in no case should aluminum be used in the equipment.

This operation may be conducted outdoors but it may be desirable to construct a shed over the dip tanks. Normal amounts of rainfall into the tank will not appreciably change the concentration of the Silaneal 772 solution, but in cold weather it may be desirable to protect the dip tanks from the elements. Very dilute solutions of Silaneal 772 will freeze at about 32 F. During daily operation, considerable heat will be given up to the solution by the brick just drawn from the kiln. During unusually cold weather or over long cold weekends, it may be desirable to afford some protection to the solution in the tank to keep it from freezing.

Costs of the two methods will vary in specific plants. As an estimate, however, the material cost for the spray process may run around fifty cents per thousand bricks. The material cost for the dip process will be in the neighborhood of twenty-five cents per thousand units. The selection of a specific process to be employed by the manufacturer will be a function of the absorptivity of his brick unit, the severity of his efflorescence problem, and the convenience with which one or the other process may be worked into his production scheme.

Advantages of Treatment

The ultimate advantages to be obtained through the use of Silaneal 772 are many. The brick unit will be kept dry without impairing its desirable breathing characteristics. This is possible since the treatment is not a water proofing, but rather a water repellent which effectively prevents flow of water in liquid form, but permits the free passage of gases and water vapor through the surface.

The greatest advantage to the brick manufacturer himself is that now he can market, with confidence, a unit which he knows will not discolor and which he may guarantee to remain free from unsightly efflorescence. Costly trouble-shooting and troublesome cleaning on jobs that have gone bad due to dirt pick-up and bloom will be essentially eliminated.

While it is true that much of the efflorescence problem has its source either in the mortar or in the back-up materials, it has always been the plight of the brick manufacturer to receive the blame since it is on the brick that the efflorescence is seen. Now he can produce a unit which will maintain its original good looks for many years through the use of the Silaneal 772 process.

All NCPMI Officers Re-Elected

At the annual meeting of NCPMI in Washington during the week of June 20, the board of directors announced the re-election of all officers for 1959.

Officers are: President, G. A. Robinson; Vice President, Research Director, A. J. Reed; D. M. Strickland, vice president and consultant to the board; W. D. Anderson, secretary; and R. G. Scott, treasurer.

New Louisiana Dealer

Ricca and Boudreaux Brick Co., Inc., selling and buying brick and building materials, located at 400 Elysian Fields Ave. in New Orleans, has been granted charter of incorporation listing capital stock of $10,000.

Roland Auble Dies

Roland A. Auble, 86, a founder of Wadsworth (Ohio) Brick & Tile Co., died June 28. For many years, he was president of the Wadsworth brick operation.

"WORLD'S MOST RESPECTED MOTOR"

And no wonder . . .

because Brook A. C. Motors have gone quietly about their business, dependably delivering power to industries around the world for over half a century.

A look at the service charts and maintenance records of hundreds of users shows why the Brook has become the "Worlds Most Respected Motor". All standard types . . . 1 to 600 HP . . . warehouse stocks, ready for shipment, and Factory Representation in major industrial centers. Send for brochure and name of your local Brook Dealer.

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BROOK MOTOR CORPORATION

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SINCE 1904 BROOK MOTOR CORPORATION

MOTO-BUG performance report:

Solves a clay products company's needs for a light-weight fork lift with 1000-lb. capacity

Wanted: a fork lift light enough in weight, yet big enough in capacity to lift and safely carry 1000 lbs. over weight-restricted floors. That was the problem facing a western clay products company. They tried a low-cost Kwik-Mix® S-10 Moto-Bug® — liked it — *bought it!* Equipped with special forks to handle various sizes of pipe in single or multiple loads, their S-10 transports green sewer pipe from press to the drying room — is shown above carrying a large-diameter 950-lb. pipe.

"Doing a good job for us"

Commenting on Moto-Bug's dependable performance, superintendent for the company reports, "We feel that this machine is doing a good job for us . . . it has worked well, and is the answer we needed to our problem."

Other uses

Kwik-Mix S-10 Moto-Bug is not only a handy fork lift — its usefulness is *tripled* with quick-change attachments: Change from 6-foot fork lift to 10 or 15-cu. ft. body, and you have a low-cost power wheelbarrow. Change again to platform deck, and you have a ¾-ton truck. To meet indoor safety requirements, it's available with L.P. gas equipment, exhaust fume control unit, spark-arresting muffler. Larger R-18 multiple-purpose Moto-Bug also available. Ask Kwik-Mix distributor for a demonstration. See him soon, or write to us for latest catalog.

KWIK-MIX CO., Port Washington, Wis. *(Division of Koehring)*

Send literature on: ☐ S-10 ☐ R-18 Moto-Bug

NAME_____

COMPANY_____

STREET_____

CITY_____

STATE_____ KM621 BCR

campaign. Malone showed that over five million messages were given through advertising last year, at a cost of 1-¾¢ per message. The new program will feature research-developed joints. Examples of past advertising were shown, with the members present unanimously favoring the remainder of the 1958 and the proposed 1959 advertising plans.

W. E. Robinson, president of Robinson Clay Product Co., presented the report of the Board of Directors of NCPMI, commending the work of NCPMI staff men and members.

President Robinson reported that the Fall NCPMI meeting will be at Key Biscayne, Miami, Florida, Oct. 19-23. The 1959 Annual Meeting will be at the Shoreham, Washington, D. C., the second week of April, 1959.

President George Robinson.

Two Dickey men, Mason and Hardin. We called Mason Hardin in May by mistake.

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for
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- Ramming Mixes
- Cements

140, 200, 400 Mesh Sizes

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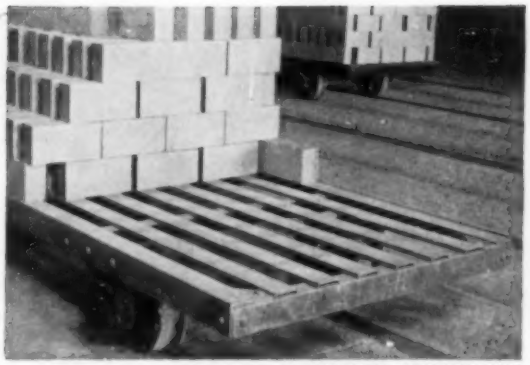

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Cost less...Last longer

Fast, smooth-rolling, trouble-free service is built into every Chase dryer car. Initial investment and maintenance costs are low. Chase equipment is used in 80% of clay products plants. Send your specifications and requests for literature to Chase.

Chase INDUSTRIAL CAR AND TRUCK BUILDERS FOR OVER FIFTY YEARS
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NEED A SOURCE OF SUPPLY FOR DRY-PRESS & RE-PRESS OUTFITS?

Typical units made in our dry-press & repress outfits

We Design & Build Outfits for Dry Pressing & Stiff-Mud Re-Pressing.

*Special Shapes *Structural Facing Tile
*Rotary Kiln & Cupola Blocks

Your Inquiries Welcomed!

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P. O. BOX 124 BESSEMER, ALA.

Manufacturer of Brick Making Equipment
Brick & Tile Dies
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Texture Devices
Special Purpose Equipment

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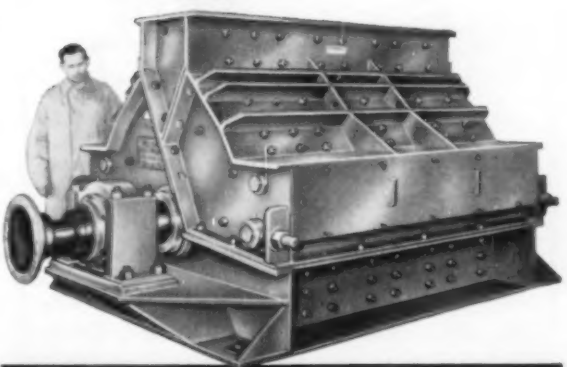
1 LOWER COST GRINDING

2 POSITIVE PRODUCT CONTROL

3 MORE GRINDING IN LESS TIME

4 LESS UPKEEP EXPENSE



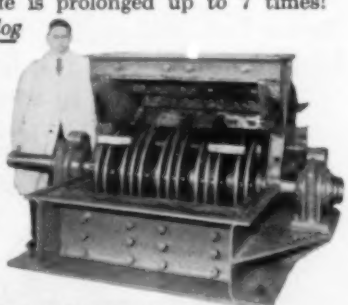
WILLIAMS

REVERSIBLE IMPACTOR

The economy, speed, quality control and low upkeep of a Reversible Impactor is unmatched for reducing bank run material to proper fineness for burned ware. In closed circuit systems, with external vibrating screens, absolutely uniform sizing to specifications is assured.

No grates are used thus minimizing upkeep expense. Reversible rotation makes manual turning of hammers unnecessary; adjustable impact blocks cut labor, downtime. Parts life is prolonged up to 7 times!

Write today for catalog



Internal view showing manganese steel impact blocks, hammers and liners. Rugged, heavy steel plate construction. Extra large shafts are mounted in oversize bearings sealed in self-aligning housings.

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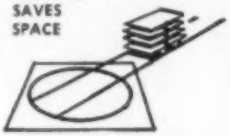

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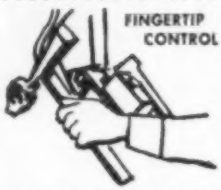

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For long, low-cost service from OFF-BEARING BELTS use Ton-Tex Oil-Ex Belting

You'll have greater satisfaction and save money using Ton-Tex Oil-Ex belts. They resist water, oils, heat and abrasion. Made in two types of duck, seven different weights. Can be vulcanized endless. Ton-Tex Oil-Ex gives outstanding service on off-bearing conveyor belt installations. Will not mar or imprint highest quality products handled.

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Next time use Oil-Ex—lasts longer, delivers better service. Get all the facts.

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The Demand Is Increasing For GRAY BRICK and RICHER DARK RED SHADES

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Turns Buff and Light Clays Gray

Flashes Red Clays to Dark Reds, Blacks and Gun Metal Shades

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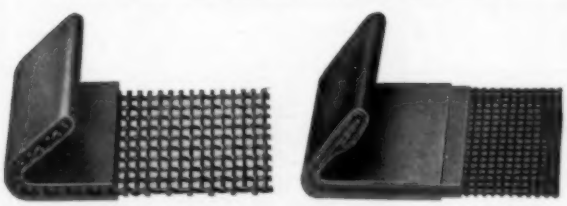
Tyler Screen Sections for All Makes of Screening Machines!



Screen sections of Tyler Woven Wire are fabricated for all makes of vibrating screens in any mesh or metal. They are made up with hook-strip or bent-edge construction to suit the machine on which they are to be used.

Tyler rugged, accurately-applied hook-strips make possible stretching and maintaining the screens at drum-head tension, which is essential for successful screening and long screen life.

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CLEVELAND 14, OHIO
Manufacturers of Woven Wire Screens and Screening Machinery

Canadian Plant—St. Catharines, Ontario, Canada

Tufhorse KANT-RIP HAND PADS MITTENS GLOVES

NO. 308

PROTECT WORKERS' HANDS!

HEAVY SPLIT-COWHIDE HAND PAD NO. 308, TIE BACK. $7.20 PER DOZEN PAIRS.

Avoid costly injuries to the hands of your workers by giving them the protection they need—Tufhorse gloves, hand pads or mittens. Made of the finest cowhide, they are flexible and comfortable to wear.

ORDER SAMPLE PAIRS AT "PER-DOZEN" PRICES

Please send me samples of ✔
☐ Glove No. G-9 ($16.50 per dozen pairs)
☐ Mitten No. 300 ($12.60 per dozen pairs)
☐ Hand Pad No. 308 ($7.20 per dozen pairs)
(All F.O.B. Des Moines)

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Firm_____
Address_____
City_____ State_____

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DES MOINES, IOWA

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Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

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BRICK and CLAY RECORD

5 South Wabash Avenue, Chicago 3

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IMMEDIATELY available: Plant superintendent, having engineering training plus thirty years' experience in the heavy clay products industry. Address Box 7-VBR, care of BRICK & CLAY RECORD.

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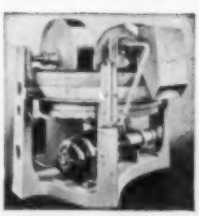

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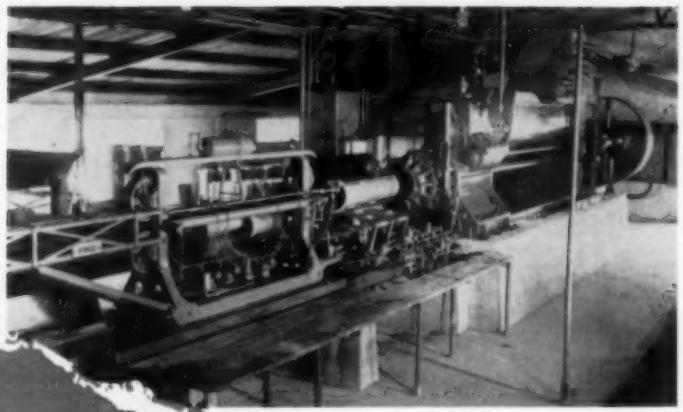

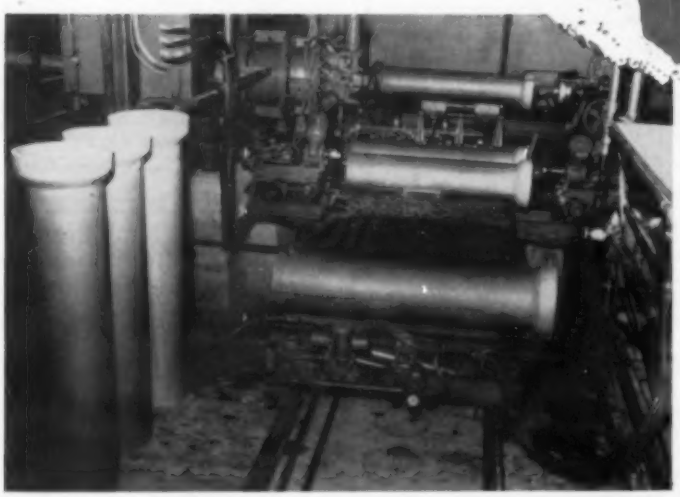

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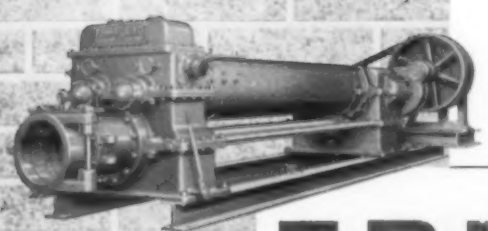

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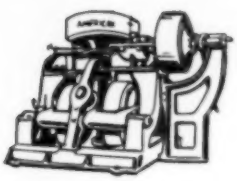

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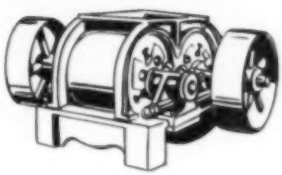

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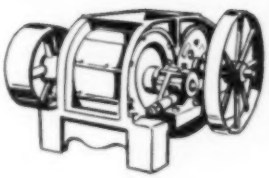

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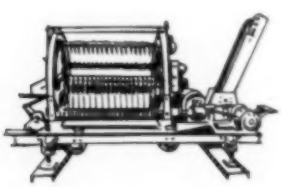

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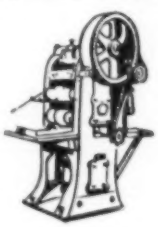

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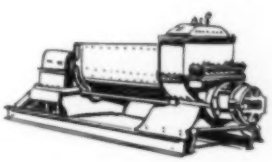

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